PAPER FOLDING
for
SCHOOLS

Charles and Son Ltd

PAPER FOLDING FOR SCHOOLS

The Aim and Value of Paper Folding.

PAPER-FOLDING although very valuable in teaching form and colour must not be regarded as an occupation in itself but as introductory to paper-modelling which should be begun as soon as possible. Anything in the way of mechanically conducted lessons should be avoided.

The aim of paper-folding is to train the powers of observation and judgment, to stimulate the inventive faculties, as well as to help the children to acquire dexterity of hand. On no account must this form of handwork be allowed to develop into mere finger training. In order to guard against this the child should guide the teacher, for even little ones can suggest, invent, find out how to make objects, and discover ways and means of adjusting folds to make something different from that previously made.

The interest of the child centres round his own experience and to keep this interest alive his own pleasure in inventing and creating must be encouraged. The object made is to be his own work carrying out an idea which is in his own mind, and not the making of certain mysterious folds to please the teacher while he himself is kept in ignorance of what he is making until the thing is done.

Some Essential Points.—It is necessary, however, that certain exercises should be carried out by the teacher and children together in order that ground forms should be well known. Many objects commence with the same folds, hence these folds must be well known in order that they may be made quicky, neatly and accurately. Careful work must be insisted upon, not merely for the purpose of getting good results now, but for the sake of paper modelling which follows later.

For successful work it is essential that all folds should be well defined. To ensure this the paper should be held in the left hand and the fold ironed down with the thumb nail of the right hand. To avoid confusion some terms must be known. The position of the top, bottom, left- and right-hand edges and corners of the paper should be quite clear in the child's mind so that any conversation involving these terms is clearly understood and the part referred to instantly recognised. Lastly, whenever possible, the objects made should be connected with other school work. This may be done by means of conversational lessons, songs, games and other forms of handwork.

The papers used should be prettily coloured and may be cut to any regular shape, but those generally in use are the four-inch square, the oblong and circle. From these, new forms may be readily made, either representing common objects, symmetrical or geometrical figures. The children are readily interested in this form of handwork, as the bright colours of the

paper please them, and they are delighted with the power they find they possess of making new forms especially those of common objects.

Group and Individual Work.—At first it is better to show the method of making the principal folds to the whole class, or to groups, in which the children will work under the instruction of the teacher who has a very large paper and who will also sketch the diagrams on the blackboard. As soon as ever the children have caught the idea and are on the right track, making the preliminary folds quickly and accurately, they should be encouraged to work alone. They should be free to choose what they will do, but some suggestions from the teacher will guide them if in doubt.

Preliminary Talk on the Unfolded Square.

For this talk each child should be provided with a four-inch square of coloured paper, various colours being distributed to add brightness to the lesson. The teacher should have a larger coloured square for her own use.

The Unfolded Square

Before the actual folding is commenced the children should be taught to distinguish the different parts of the paper given to them, and to point them out: *e.g.*, the top and bottom edges, the right- and left-hand edges, and the right or left top or bottom corners, so that they may readily understand the teacher's directions.

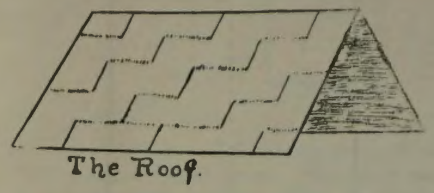
The teacher should begin with a brief talk about the square. How many sides has it? How many corners? Let the children name other square objects they can see, or with which they are familiar. The various colours should be named, and the teacher should draw a square on the blackboard, and colour it.

THE FIRST FOLDS.

Horizontal Fold.

A Roof.—Let children fold the top edge on to the bottom edge of the square, care being taken not to remove the paper from the desk, and to

make the crease with the back of the thumb-nail. The children should first watch the crease being made on the large square by the teacher. When the



The Roof.

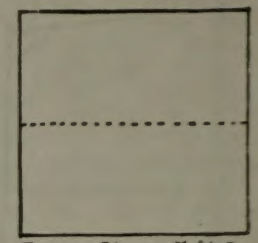
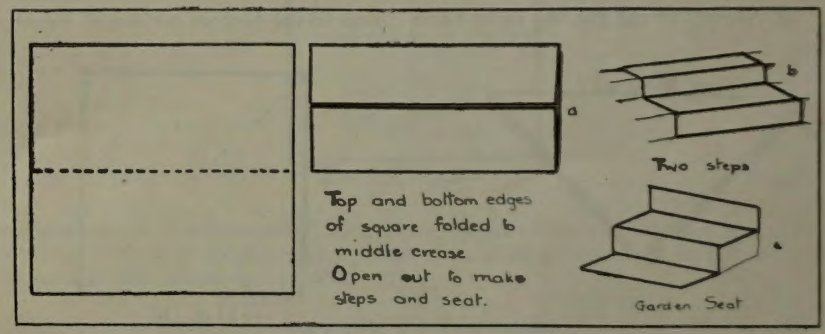


Diagram Showing Fold I

object is made and recognised by the children, the teacher should have a short chat with the class about a roof, and either show picture of roof, or rapidly make a sketch of one on the blackboard as in diagram.

Steps.—Open out the folded paper, notice the crease down the middle, fold the top edge to the crease, then fold the bottom edge to the crease (*a*), open out slightly and there are two steps (*b*).

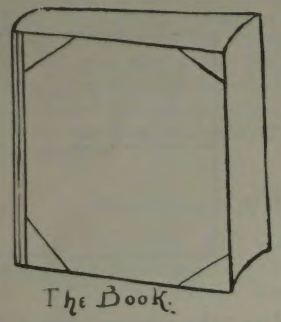


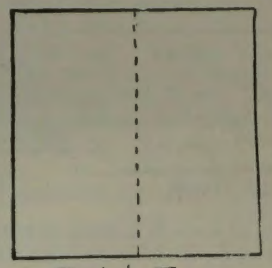
Garden Seat.—Fold as before but turn the paper, open it out the other way, and the result will be a garden seat (*c*).

Vertical Fold.

A Book.—Fold left-hand edge of a square on to the right-hand edge of the square, as in diagram. Ask for name of object made. Let children

open and close book. Compare with real book, and rapidly sketch on B.B.

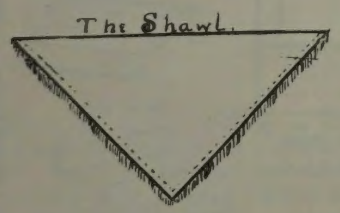


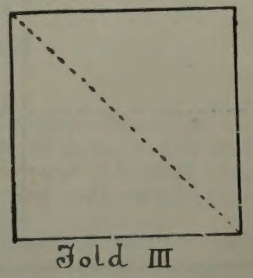


Screen.—By folding the right-hand edge to the middle crease and then the left-hand edge to the middle crease a screen for the dolls' house will be made. This may be decorated with coloured chalks, or little scraps.

Diagonal Fold.

A Shawl.—Fold the top right-hand corner to the bottom left-hand corner,



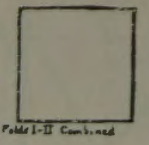


carefully holding the edges together with the left hand. Let children name the object made; compare with real shawl, and sketch shawl on B.B.

Double Fold.

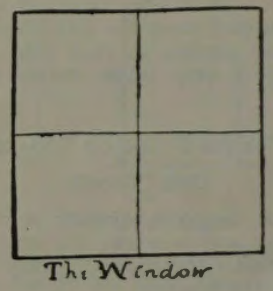
A Handkerchief.—Place the square flat upon the desk. Then fold as in (I.), and without opening fold the left-hand double edge on to

the right-hand double edge, thus forming a smaller square, which is termed the handkerchief. Sketch on B.B.



A Window.—The above opened out forms the window, with four panes. Let children count these. Compare with window of school-room. Of what is the window made? Why is it made of glass, etc. Sketch window on B.B. as in diagram.

This lesson may be made more interesting, and the children stimulated to greater carefulness by small additions, such as chimney pots for roof, small scraps to be placed on cover of book, paper fringe for shawl, small initial



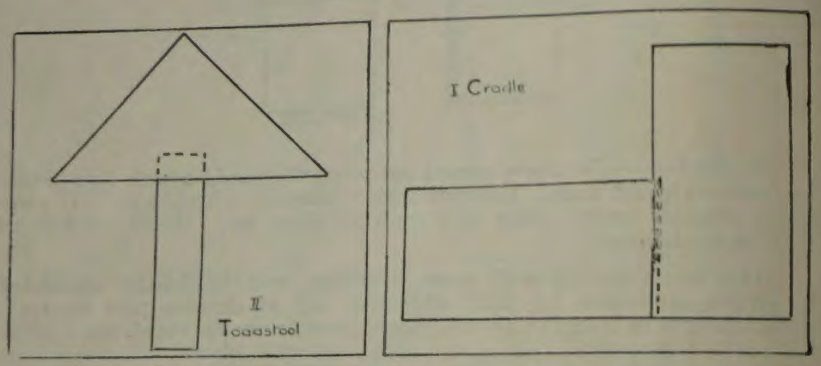
to be placed on handkerchief, etc., being supplied by the teacher, and given to those who show special care. These should be gummed on to the work at the end of the lesson by the teacher.

Objects Made From Two Squares of Paper.

A few very simple flat objects can be made if the children are allowed more than one paper each. For instance, two squares—one folded as for the roof and the other folded as for the book—will make a cradle if placed as shown in Diagram I, see page 6.

A red paper folded diagonally and a yellow paper folded in four vertically will make a toadstool. Diagram II (page 6).

Suitable things to make will suggest themselves to the children. It will be found a great advantage to use the "City" packet of papers for this



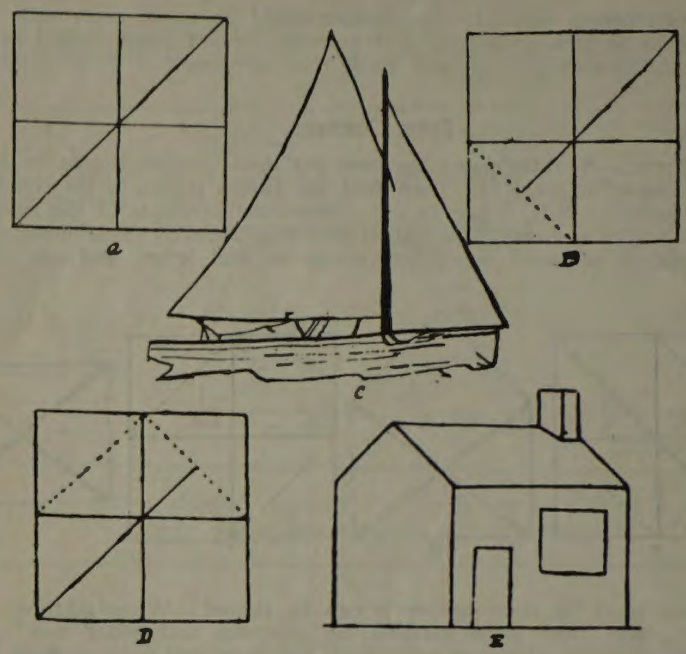
work. These may be obtained from the publishers, and are a decided improvement upon the glazed papers, as each side of the paper is coloured. The teacher should have a very large square of paper with which to demonstrate.

Corner Folds on Square.

One Corner.

A Ship.—By means of the folds, already practised, which made a roof, book, shawl, handkerchief and window, the centre of the paper has been found. Diagram A represents the papers as they appear when the children made the last object, *viz.*, the window.

Place paper flat upon the desk. If the ordinary glazed papers are used, the children should be told to place the ordinary white side upwards on the desk, so that the colour may be visible when the objects are formed. The diagonal should run parallel to the edge of the desk. The teacher should draw Diagram A upon B.B., and from this show centre of the paper; let the children take the bottom corner and fold it to the centre of the paper, as in Diagram B. When this is done, the teacher making the same fold on her larger paper with the children, the folds should be carefully examined as accuracy is essential in these preliminary stages or later on work will suffer. The careful children should be commended. This has made a ship. Where can we see a ship? Draw ship on B.B. (Diagram C), and ask a few questions about it. What are the men called who work on the ship? What causes it to move? etc. Refer to different kinds of ship.



Two Corners.

A House.—Let the children make another fold on the paper, care being taken that the papers are not raised from the desk. Fold the next corner to the centre for this, as in Diagram D, the teacher each time making the fold with the children. This makes a house. Draw a house on B.B. and let the children point out the place for door and windows. (Diagram E.) Of what are houses made? What is the man called who builds them? Let children point out walls, roof, etc., of the house. Of what are the windows made? Why are they made of glass? etc.

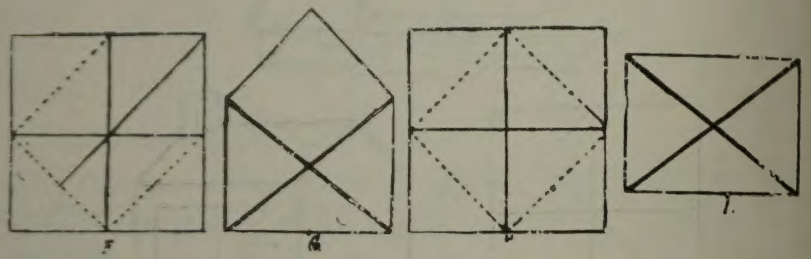
Three Corners.

An Envelope.—If a real envelope is shown and a drawing of one made on B.B. the children will at once suggest the way to make one is to turn down the third corner (Diagram G). Ask why one corner of envelope is left open. A child can place a letter inside the real envelope. Then a few

of the best papers folded by the children might be made secure with a little gum, so as to form envelopes, and a small piece of paper should be given for the children to fold and put inside their envelopes.

Four Corners.

A Letter.—Now the paper has been put inside the letter must be fastened down. Draw Diagram H. Then fold the fourth corner to the centre, and draw a letter on B.B. (Diagram I). Fasten the envelopes of the most careful children, as a reward, and further encourage them by distributing stamps, to be placed on envelopes. Place stamp on real letter, and ask children



what else must be done before it can be posted. Write address on the envelope, and then show pictures of postman and pillar box. Small additions might be given out when folds are made well, such as flags for the ship and chimney pots for the house. The children should be allowed to draw one or more of the objects made at the next drawing lesson.

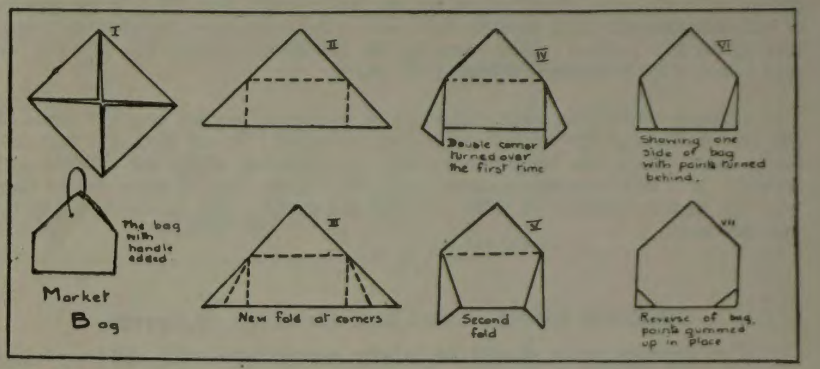
Simple Objects, Using Corner Folds.

A Market Bag.—If this bag is made with a small square of paper it will do for a doll, but if made of brown or any tough paper, it can be of any size, and suitable for the child's own use.

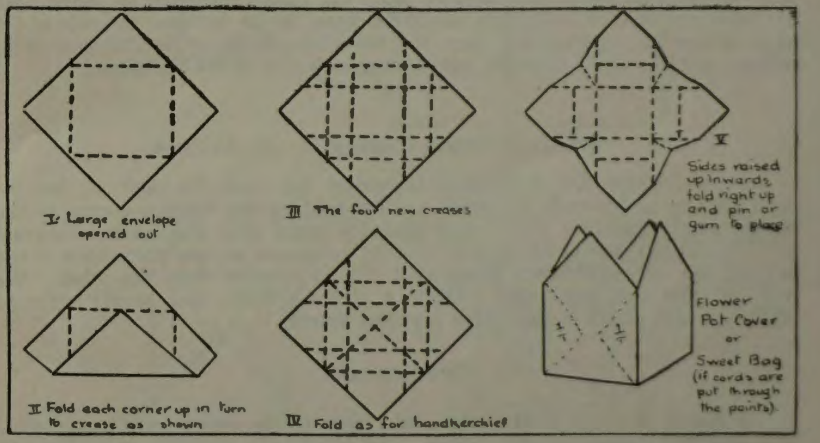
Fold as for the large letter, Fig. I. Open out and fold as for the shawl, Fig. II. Make two new little folds in the double triangle. These new folds run from the corner of the creased square to half way between the corner of the triangle and the side of the creased square, Fig. III.

Fold each of the two corners over twice. The first fold will bring the outer edge of the triangle lying along the side of the creased square, Fig. IV. and the second will bring it on to the body of the bag, Fig. V. It only remains now to fasten the two folds down with gum, Fig. VI. and to turn

up on the reverse side of the bag the two points which project at the bottom. These are fastened with gum thus making very firm corners, Fig. VII.



A handle must be added as shown in the diagram. Cotton or wool will do for the doll's bag. Something stronger will be wanted for a real bag,


I. Large envelope opened out
III The four new creases
V
Sides raised up inwards, fold right up and pin or gum to place
II Fold each corner up in turn to create as shown
IV Fold as for handkerchief
Flower Pot Cover or Sweet Bag (if cords are put through the points).

and so some paper may be pasted behind the points, or they may be turned inwards, to make a stronger hold for inserting the handle.

A Flower Pot Cover.—Begin with the large letter folds and open out to show the creases, Fig. I., and then fold each corner in turn to centre of crease, Fig. II. When all four corners have been turned up in this manner the paper shows the new creases as in Fig. III. Now fold as for the handkerchief, Fig. IV. At the middle of each side raise the folds inwards and draw up the four creases towards the centre making the four pointed corners stand up like the sides of a box, Fig. V. Pin, or gum firmly, these triangles inside as in the sketch.

A Sweet Bag.—This same shape can be used as a bag for sweets if cords of silk are run through the upstanding corners or points. It will be found that this easily folded shape can be put to various uses many of which the children will suggest. It is well, wherever possible, to use the things made by them so that they may feel that the work is of value and that the paper is not merely folded to be unfolded again.

GROUND FORM—THE LARGE ENVELOPE OR LETTER.

The previous work should be briefly recapitulated, the children being reminded of the chief points requiring care in each fold, and the teacher saying a few words about each object as it is made, so as to interest the class. The children should continue folding until they arrive at the last fold which they have been taught, *viz.*, the closed envelope or letter. At this point the children's attention should be drawn to the fact that one side of the paper is now flat, and will not open, and the other consists of four triangles (Diagrams 1 and 2). Draw diagrams representing each side on the blackboard.

ONE CORNER.

A Small Ship.—Let the papers be placed flat upon the desk so that the open side is underneath Diagram 1. By folding the bottom corner to the centre, firmly pressing the creases made, a small ship will result, Diagram 3. This object the children will at once recognise as one they have made before, the only difference being that this is smaller than the other. We will call this the small ship. Draw a ship on B.B., and briefly refer to what was said about a ship in the previous lesson.

TWO CORNERS.

A Small House.—Fold the second corner to the centre, care being taken to make the corners exactly touch, and there will now be a house but a smaller one than the other house, Diagram 4. Ask a few questions about this, and then sketch a house on B.B. as in previous lesson.

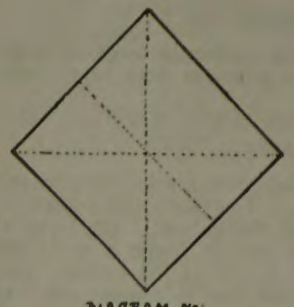


DIAGRAM. N°1

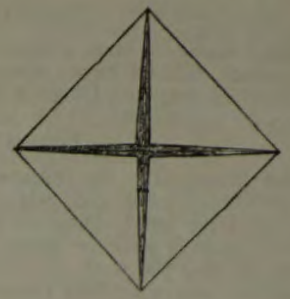


DIAGRAM N°2

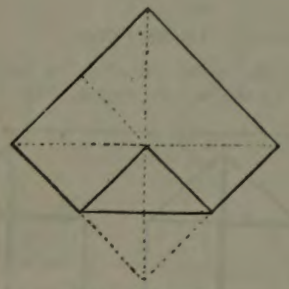


DIAGRAM N°3.

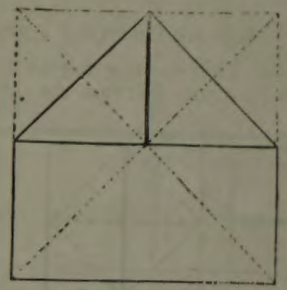


DIAGRAM. N°4.

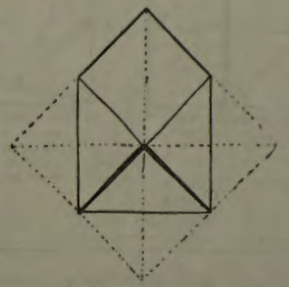


DIAGRAM. N°5.

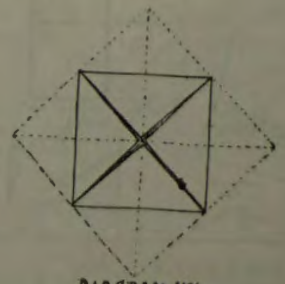


DIAGRAM. N°6.

Three Corners.

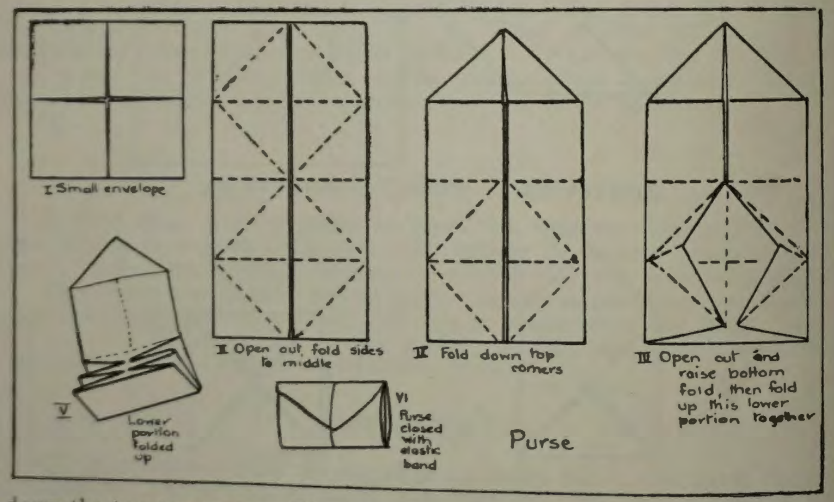
A Small Envelope.—Make a third fold, as for the large envelope, letting the most careful children have papers to represent note paper, which is to be placed in envelopes, etc., Diagram 5.

Four Corners.

A Small Letter.—Let the children make the fourth fold, so as to form the letter previously made (see page 8). This last fold brings us to the next stage, and the letter, Diagram 6, is the ground form from which the next series of objects must be made. It will be found a good plan to let the children, during the week, write the names of the various objects they have learned to form with their papers, and also to connect this lesson with the drawing lessons, and any Kindergarten occupation such as sticklaying, in which the children might form one or all of the objects folded during this lesson.

A More Difficult Exercise on These Folds.

A Purse.—This exercise begins with the small envelope or letter, Fig. I. Open out the paper and turn the sides to the middle crease, Fig. II. Fold


I Small envelope
II Open out, fold sides to middle
III Fold down top corners
III Open out and raise bottom fold, then fold up this lower portion together
V
Lower portion folded up
VI
Purse closed with elastic band
Purse

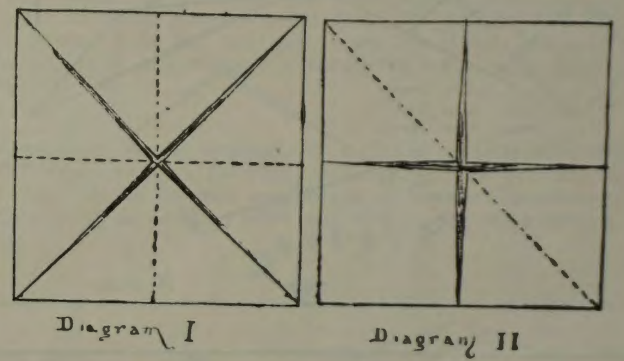
down the two top corners, Fig. III. Open out and raise up the two bottom folds as shown in Fig. IV. This will draw up and fold the lowest row of

squares over the next thus forming the divisions of a purse; Fig. V. shows the folds in position. The top is then folded over and an elastic band is slipped round to keep the purse closed as in Fig. VI.

GROUND FORM—THE SMALL LETTER OR ENVELOPE.

A Difficult Fold Introduced.

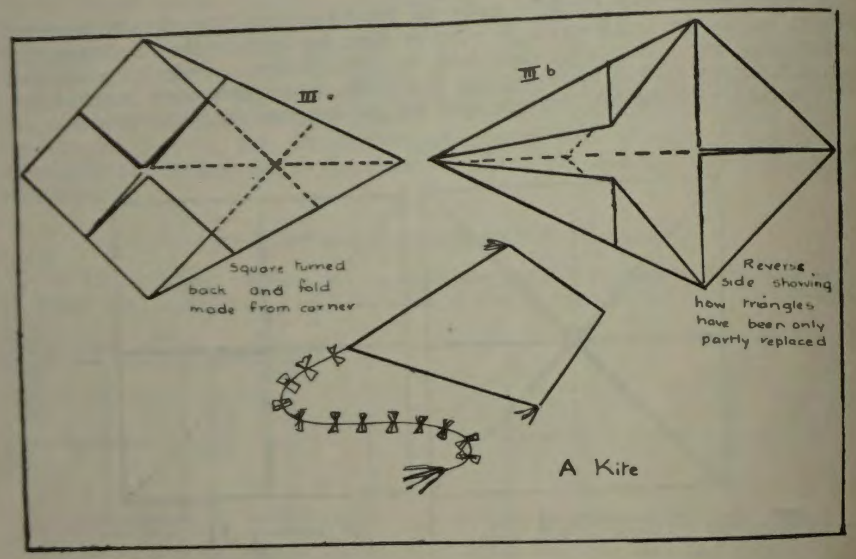
The children can carefully make all the folds they have already practised right up to the small envelope. Stress must be laid on the importance of exercising great care with each fold, to work slowly in order to avoid the great tendency to fold hurriedly, and frequently, as a consequence, inaccurately. The accuracy of one fold depends upon the previous ones being perfectly correct.



When the folds are complete as far as the small envelope it may be drawn upon the B.B., Diagram 1, representing one side of the paper. Draw attention to the four divisions on this side. Then, after the children have placed their papers so that the triangles are visible, let them count the sides of each part, and give them the word "Triangle." Let the children then turn papers to the other side, and describe what they see. Draw Diagram 2 on B.B., and ask for name of each part. How many squares can you see? How many sides has each square? etc.

A Kite.—Let the children place the papers on the desk, so that the little squares are uppermost. Place one finger under one of the squares, and turn it down, Fig. IIIa. To do this two of the small triangles on the other side will have to be partly unfolded, and a small part only of each triangle will be

replaced. Make a crease to the corner of the square removed, to form an object like that given in Fig. IIIb. Place the large paper on B.B. and ask the children if they know what to call their papers. Then show a real kite, and also draw one on B.B. Should this lesson be followed by recreation, the children should be allowed to fly the kite the teacher has shown them in the playground.


III a
III b
Square turned back and fold made from corner
Reverse side showing how triangles have been only partly replaced
A Kite

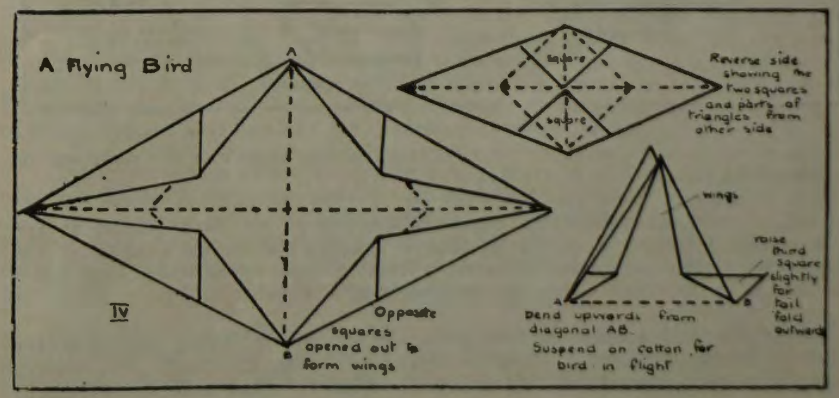
A Flying Bird.—Place papers on desk, and raise up another small square opposite the one last raised and make folds as before. Then lift slightly (but not turn right back) a third square to make tail of bird, see Fig. IV. bend the two wings up slightly and thread cotton in the diagonal, the bird will appear to be flying, Fig. IVa. Obtain from the children the name of the object their papers resemble, and sketch bird on B.B. Show pictures of several birds, some with wings open, and others with them shut, and let the children come out of the class, and show which theirs is like. Why are its wings open? etc. At this part of the lesson let the children play a game about a bird, some of the children representing trees, and standing with their arms up to form the boughs, and others representing the birds, some making the nests and others representing the birds flying among the trees

Another New Fold.

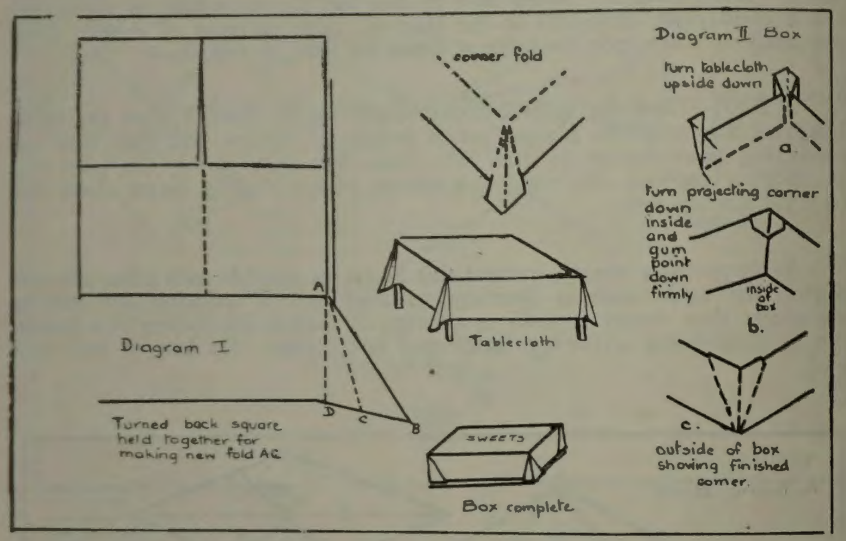
A Tablecloth.—Fold as for the small letter so that the squares are uppermost. Place one finger under a square and turn it downwards. This unfolds two of the smaller triangles on the other side. Fold the turned back square together as in Diagram 1. Make a small fold from corner A to C, a point half way between A D the side of the triangle made by this small square. Open out the square and flatten it along the new fold. Do this at each corner as this will make the fullness at the corners of the tablecloth. Ask questions. When does mother put the tablecloth on the table? Let a child place tablecloth on the teacher's table in front of class. What else shall we place upon the table at breakfast time, at tea time?

A Box.—Place the tablecloth just made upside down flat on the desk, Diagram 2a; hold the pleated corner firmly in position and then turn the projecting point inside the box (b). Gum this down firmly (c). Do this at all four corners. By making a similar object slightly larger there will be a lid for the box.

As in previous lessons, connect this as far as possible with other subjects during the week, such as drawing, writing, etc. If pricking and sewing are taken, they should be used as a means of further illustrating this lesson, the children being allowed to prick and sew a copy of a kite, a bat, or a bird.


A flying Bird
A
Reverse side showing the two squares and parts of triangles from other side
square
square
wings
raise third square slightly for tail fold outwards
IV
Opposite squares opened out to form wings
bend upwards from diagonal AB.
Suspend on cotton for bird in flight

A Windmill.—Place a tablecloth (Diagram 1 below) flat on the desk with the corners pointing upwards. By flattening the four corners of the tablecloth, and arranging them so that one corner projects from each side of the square a figure similar to Diagram 3 results. The children will see that this resembles the sails of a windmill. The windmill may be fastened to a stick by means of a drawing pin or ordinary pin, and made to revolve, Diagram 3a. Which children have seen a windmill? Draw a windmill on B.B. What causes the sails to move? Of what use is the windmill? etc. When the teacher has seen that the folds are correctly made, the children should be allowed to play a game in connection with the object, the children forming

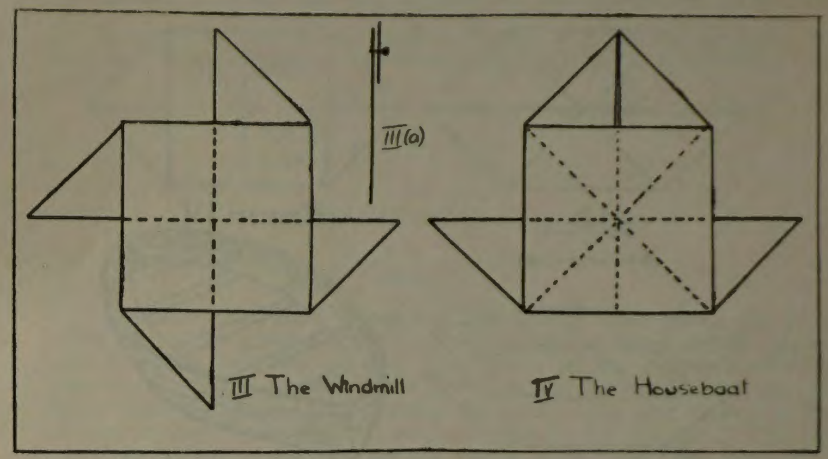


a cross to represent the sails, and then the cross moving on its axis will represent the motion of the sails.

A Houseboat.—Have the papers placed upon the desk folded as for the windmill. Place a corner so that it touches the corner already at the top, and the other one so that it becomes level with the fourth corner, and forms the boat as in Diagram 6. Describe the houseboat, and sketch on B.B.

This model can be used to illustrate lessons on laying the table for various meals, a windmill, flour or bread. During the week the children can draw one or more of the objects they have folded and the windmill,

table and cloth, or houseboat may be readily pricked and sewn during the subsequent lessons devoted to Kindergarten work.



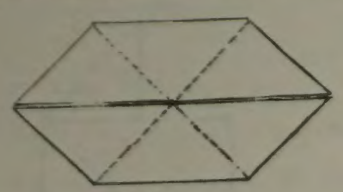
GROUND FORM—THE HOUSEBOAT.

As this form will be adapted for the next few objects, when it is done attention may be drawn by means of B.B. sketches to the two sides of the houseboat. Diagram 1 should be drawn on the B.B., and the attention of the children directed to it. Let them place their papers upon the desk so that the surface showing the square is visible, and then count the points or corners at the sides of the square. How many corners at the left-hand side? How many at the top? etc. Sketch Diagram 2 on B.B. and let children turn their papers and describe the difference between the two sides.

A Cigar or Spectacle Case.—The two corners at the top of the houseboat are placed in the same position as the other two lower corners, so that there may be two points on either side, as in the illustration given. Then let the children carefully make the folds for themselves, and suggest use for the object they have made. Show a spectacle case or a cigar case, and have a short talk about it, its uses, its shape, etc.

A Double Boat.—Place the cigar case upon the desk, with the smooth side (showing the square) upwards, as in Diagram 4, and the points to the right- and left-hand. Fold the top edge of the square on to the bottom

edge, Diagram 5. When this shape is opened out a double boat is made to stand upon the desk, and the children will readily recognise the object they have made; they will be greatly pleased and interested if they are



The Cigar Case or Spectacle Case

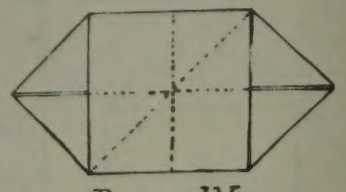


Diagram IV.

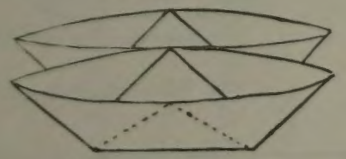
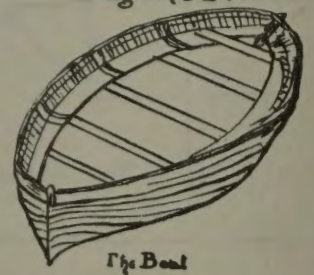


Diagram V



The Boat

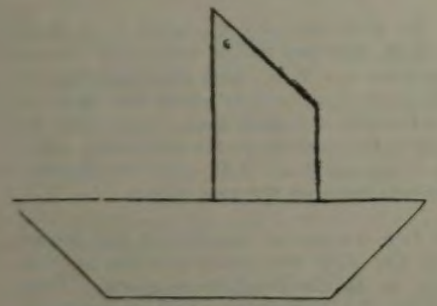


DIAGRAM I

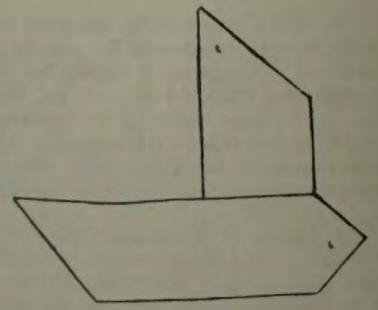


DIAGRAM II.

allowed to float one or more of them in a vessel of water while they talk about boats. A good picture of a boat should be shown, or a sketch of one placed upon the B.B. and in conversation attention may be drawn to the different parts of the boats, *viz.*, the seats, the oars, the sides, etc. Who

has been for a row in a boat? What caused it to move? What name is given to the man who rows the boat? and so on.

The children should next sing an action song bearing upon the lesson.

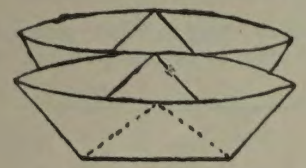
At some other time a boat might be drawn and various Kindergarten occupations, such as stick-laying, clay-modelling, and embroidery can introduce the boat form.

GROUND FORM—THE BOAT.

A Boat with a Sail.—From this boat form a boat with a sail is easily made. Hold the paper so that the two points are in each hand. Take one point from the left-hand side and fold it over to the right-hand side, as in Diagram 2. There are now three points in the right-hand and one in the left. Take the middle point on the right-hand side, and raise it so that it is vertical and forms the sail, as illustrated in the diagram. The teacher can draw a boat with a sail on B.B. Also show a toy boat with sail, and let a child place this in some water. Ask who has seen a boat with sail. Of what use is the sail? Of what made? etc. There should be some small additions in readiness at this stage of the lesson, such as small scraps representing sailor boys, and these should be given to those whose folds are most carefully made, so that they may place them in the boats. If time permits the children can play a game in connection with a boat.

A Flower Stand.—Fold the boat with sail as in Diagram 2 then take one of the two points on the right-hand side and fold it downwards, Diagram 4. It represents a flower stand; let the children place their papers on the desk in the same way. What shall we put on the flower stand to make it look pretty? Draw on B.B. a flower pot and plant on top of the stand, as in the illustration. Let the children have scraps representing plant in pot, to place on their papers, to make the flower stand complete, and if time permits the teacher should secure these with a little gum, as a reward for careful folding on the part of the children.

This object can be used as a ruler exercise by the children in the period assigned for drawing, and the same forms may be pricked and sewn during another Kindergarten lesson. Talks may be given on a boat, the use of a sail, the wind, etc., and wherever possible this lesson should be still further connected with the other work of the week, such as stick-laying and clay-modelling.



DIAGRAM

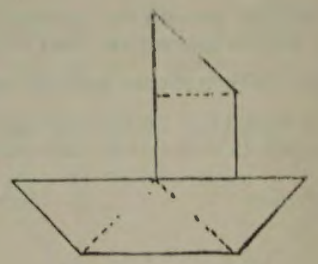
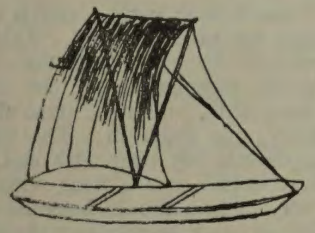


DIAGRAM II



THE BOAT

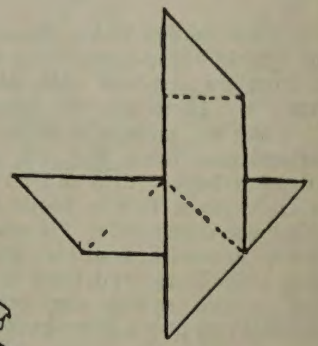
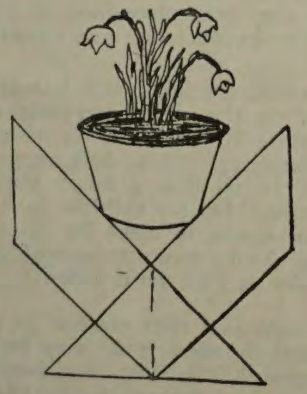


DIAGRAM III



FLOWER STAND

GROUND FORM—THE BOAT WITH THE SAIL.

INTRODUCING NEW FOLDS.

For the next suggestion the children should work as far as the boat with the sail. When each fold has been accurately made, the diagram of the last should be placed on the B.B. (Diagram I.), and the children will place their papers on the desk in the same position as the diagram.

A Cradle.—Get the children to describe the appearance of their papers. How many points can you see? How many pointing upwards? How many to the left-hand?—to the right-hand? Then by means of the large square show how to fold the two corners on the right-hand side inwards, so as to form the cradle. In order to do this two distinct folds are necessary for each point or corner. First fold the points downwards as in Diagram 2. Care must be taken that the children fold them inwards as well as downwards. Then when this has been carefully done the points should be folded inwards as in Diagram 3, and the cradle thus formed. Sketch cradle on B.B., and have a doll's cradle in front of class for the children to see. Then, as a reward for care shown, let a child come and place a doll in the cradle. In addition to this scraps representing dolls should be given to the children to place in the cradles they have formed with their papers. At this point of the lesson the children might be allowed to play a game, or sing a song having reference to the object made.

A Boat with a Box for Fish.—This fold follows on that of the double boat, Diagram 5.

The points or corners of one boat must not be turned inwards, one boat must remain as it is, while the other will be used to form the box. For this two distinct folds must be made. First turn the points inwards and downwards, as in Diagram 6, explain by reference to a diagram on the B.B. When this fold has been completed and examined, show how to turn the corners inwards so as to form the box, as in Diagram 7. Place this diagram on B.B., and the children can make the fold for themselves. The best workers should be rewarded at the end of the lesson by the gift of small scraps to place in the boat, so as to represent the fishermen. These little additions greatly add to the interest and pleasure of the work, and, as the children can aid in the distribution of them, it will be found possible to introduce them even in very large classes.

The boat may be used to illustrate conversational lessons on a boat, a fisherman, or a fish. The children may make a box, a boat, or a cradle

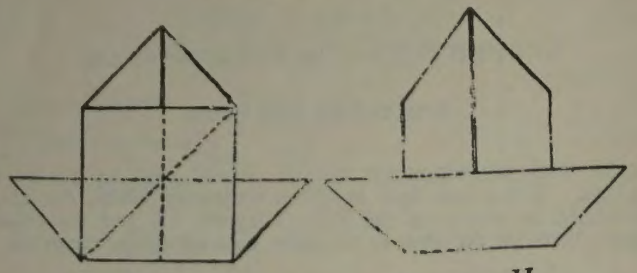


Diagram I.

Diagram II.

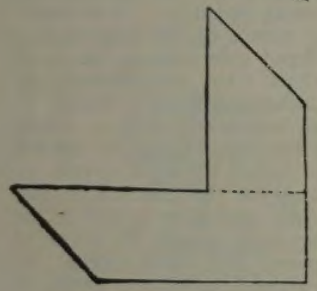
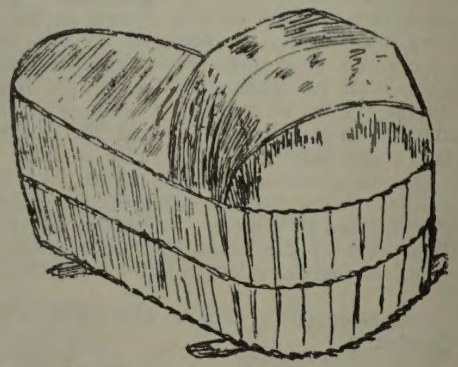


Diagram III.



The Cradle

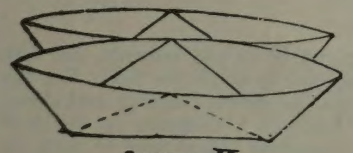


Diagram V

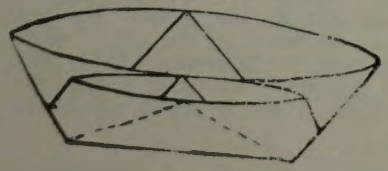


Diagram III

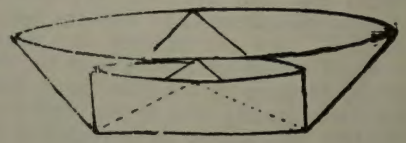


Diagram VI

from clay; or they may prick and sew a cradle, box, etc. The drawing lesson should also be connected with the paper-folding, by letting the children draw a box, boat, fish, etc., and as far as possible the Kindergarten occupations and the other lessons of the week should have a similar connecting thread running through them.

GROUND FORM—The Boat With the Box for Fish.

Starting from the plain unfolded square the children make all the folds which have already been dealt with in previous lessons. This will bring them to the last fold used, in which the box for fish was made, Diagram 1.

A Purse.—The children will remember that they folded two corners of the double boat inwards in order to form the box. Point out, and illustrate by means of the large square, that the two corners of the boat must be folded in the same way in order to form a purse, care being taken that each corner is folded twice in order to make the folds more secure. Draw Diagram 2 on B.B. Show a purse, and have a short conversation about it, its natural use, etc. Some of the children might have a coin to put in the purse. This will greatly please the children and stimulate their interest. It will also be a great incentive to careful work in making the next items.

A Box.—Place the purse flat upon the desk, as in Diagram 2. Then draw attention to the two bottom edges of the purse, raise the nearer of the two bottom edges and flatten out the purse so that a square is formed as in Diagram 3. Before the children do this for themselves let them see the edge of the teacher's paper raised, show Diagram 3. Then turn the large paper as in Diagram 4. The paper must now be opened in such a way as to form a box. This will at first be found rather difficult, and it will be found best to insert the finger in the centre and gradually raise each of the four sides of the box. As this is a little difficult the children will have to be shown how to do it before they attempt it for themselves. Diagram 5 shows how the papers should now appear. The corners of a few of these boxes might be secured by means of a little gum, and the children might be allowed to keep them and their contents.

A Picture Frame.—The first stages in this are the same as for the box explained in the last paragraph. The box will have to be flattened to form the frame, and great care must be taken because of the corners. Take the two top corners firmly between the finger and thumb, care being taken not to place either the finger or thumb inside the box. Then fold these two corners upon the corners below them, so that the top edge touches the edge beneath it. Then take the two bottom corners and fold them also upon the corners underneath, as in Diagram 6.

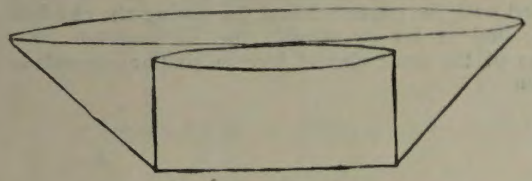


DIAGRAM 1.

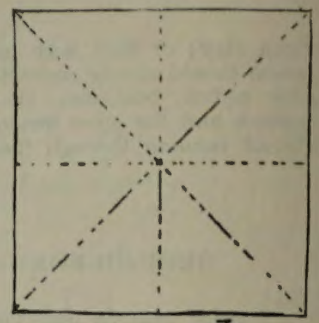


DIAGRAM 3.

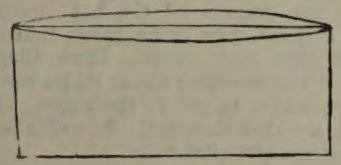


DIAGRAM 2.

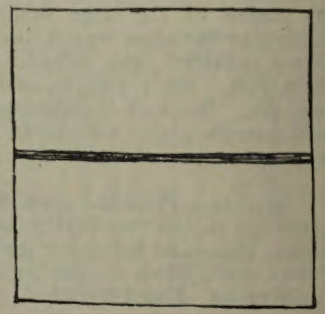
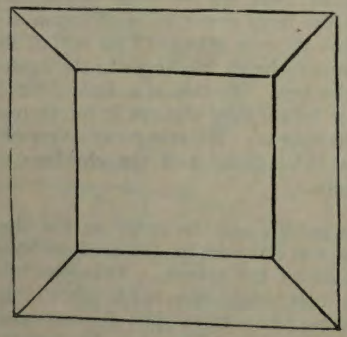
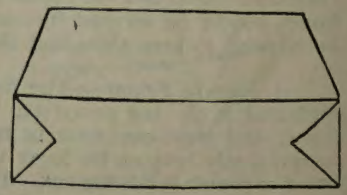


DIAGRAM 4.



THE PICTURE-FRAME



THE BOX

The teacher should have some very narrow strips of paper in readiness, with which to form the cord for the pictures, and scraps should be stuck in the frames with a little gum to represent the pictures.

The above objects should be introduced, as far as possible, into the other lessons of the week.

GROUND FORM—PICTURE FRAME.

SIMPLE OBJECTS USING VARIOUS FOLDS.

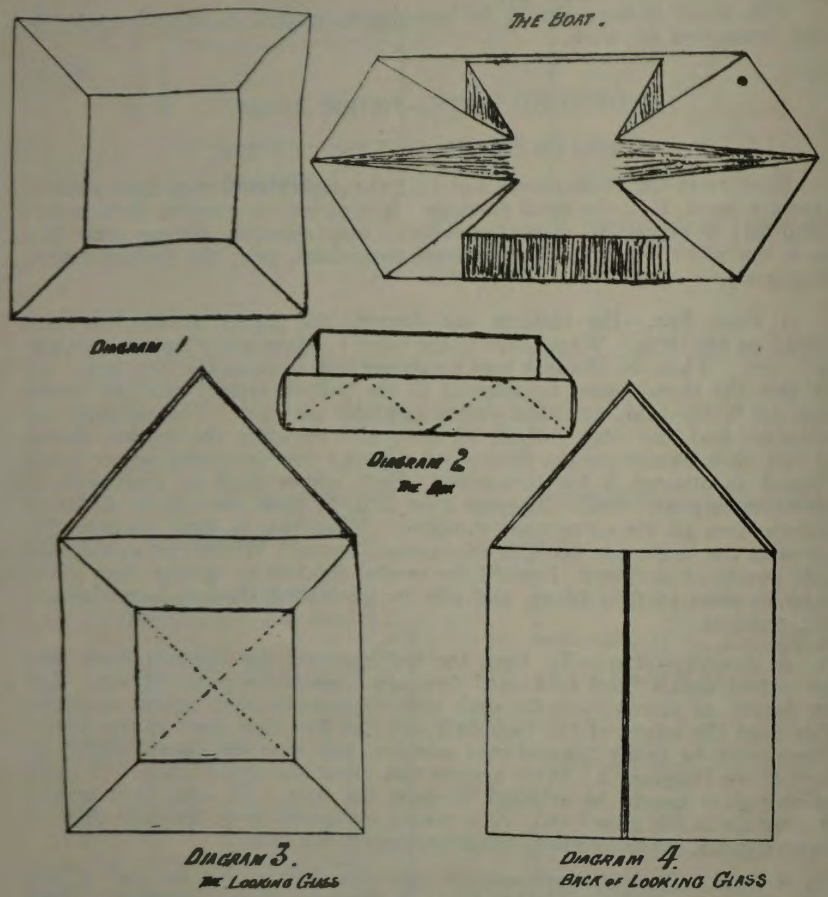
Start from the plain square and fold the papers until they have reached a certain point, *e.g.*, the small envelope. It is as well to examine these before going on; if accurately made the children may continue folding until they reach the point where the last exercise terminated, *viz.*, the picture frame, Diagram 1.

A Firm Box.—The children can describe the papers as they are now folded on the desk. What shape is the paper? How many squares can you see? etc. Then the children may be shown how to form the firm box. To do this the thumb must be inserted in the picture frame, and one corner must be firmly held, and then drawn carefully outward. The children will probably find this very difficult at first, and therefore the teacher should be sure they clearly see the method of drawing out the corner before being allowed to attempt it for themselves. Each corner must be dealt with in the same manner. Draw Diagram 2 on B.B. to show the box as it should appear when all the corners are complete. When this is done compare this box with the larger one made in the previous lesson. Which box would hold most sweets or marbles? Reward the careful children by giving them something to place in their boxes, and also by permitting them to keep the box and contents.

A Looking-Glass.—To form the looking-glass the children must take the second square, and fold until they again reach the picture frame. Let the papers be placed upon the desk with the smooth plain square upwards. Now fold the edges of the back half way, so that they meet in the centre. These must be firmly pressed into position, and then the papers should be turned, see Diagram 3. Have a short talk about the object made. A small looking-glass should be at hand to show the class. Of what is it made? Of what use is the glass? etc. As a reward for careful work distribute strips of coloured paper, cut to represent the cord to suspend the glass.

A Boat.—Place the looking-glass upon the desk so that the back of the glass (the side which was folded back) is upwards, as in Diagram 4. Take the top edge and fold it downwards upon the bottom edge. Hold the fold just made in the left hand between the finger and thumb, and with the right hand draw out the ends as far as possible. Turn the papers over so that

the boat is in the right position. Show a toy floating in a pan of water, and finish the lesson with a game or song about a boat.



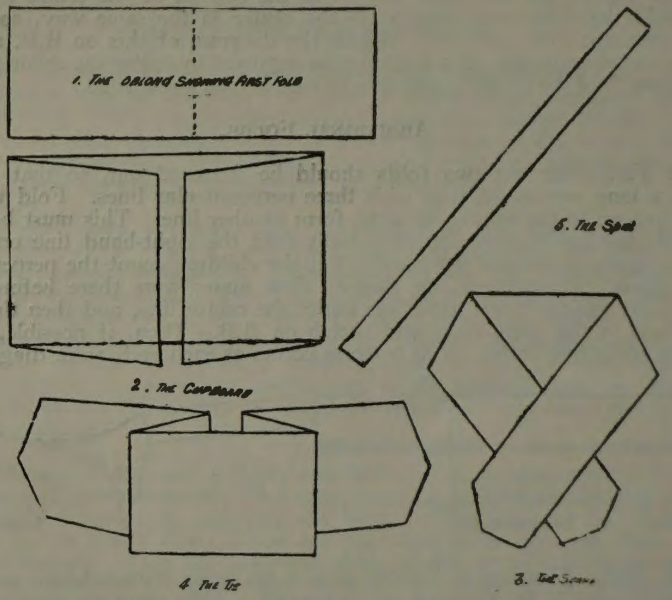
A boat or a box may be made in the clay-modelling lesson, and also in the embroidery and the stick-laying lessons.

OBJECTS TO BE FORMED FROM THE OBLONG.

Material required.—An oblong of coloured paper, size 6 in. by 2 in. for each child. The teacher should have a larger oblong for her own use.

A preliminary talk on the oblong should be given as an introduction to this series.

Sketch an oblong on B.B. and let the children place their papers in a similar position to the diagram, *viz.*, the long edges at the top and bottom, and the short to left and right sides. Then refer to shape of papers. How many long sides has the paper? How many short sides? May we call it a square? Why not? Give word "oblong," and ask children to name other things of this shape—a ruler, surface of table, picture, etc.



VERTICAL FOLD.

A Cupboard.—The left-hand short edge is folded on to the right-hand short edge, make a firm crease with the finger nail (Diagram 1). Open the paper and draw attention to the line made in the centre, and draw the line

in the oblong on B.B. How many oblongs now? etc. Fold the left-hand edge to the centre line. Then fold the right edge to the centre in the same way, thus forming the cupboard (Diagram 2). Sketch this on B.B., let the children describe it. How many doors, edges, etc.? Refer to cupboard in room, and question with regard to its use, shape, etc.

Diagonal and Horizontal Fold.

A Scarf.— Diagram 3. Open the papers and lay them on the desk. Fold the oblong lengthwise thus forming a smaller oblong. Open papers and notice middle crease across the oblong. Fold the top and bottom edges to the middle crease. By means of diagram on B.B. draw attention to the three perpendicular lines on the paper, and show the next step, *viz.*, to fold the top of the left-hand line on to the bottom of the centre line, and then fold the right-hand line on to the centre in the same way, so that it folds over upon the left side. Sketch the diagram of this on B.B. and ask for name of object made. The scarf may be improved by letting the children, unless very young, fold the corners under so as to form a point at each end.

Additional Folds.

A Tie.—The last two folds should be flattened out, so that there is again a long narrow oblong, with three perpendicular lines. Fold the left-hand line on to the centre, so as to form another line. This must be firmly creased down and then opened. Next fold the right-hand line on to the centre, again crease and open out. Let the children count the perpendicular lines again. How many are there? How many were there before? etc. Then fold the outer left-hand line under the centre line, and then the right-hand one in the same way, and sketch on B.B. Then, if possible, let the corners be turned under, so as to form points at each end, as in diagram.

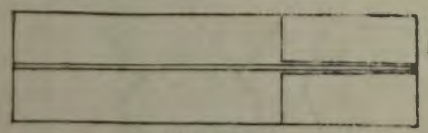


Diagram 6.

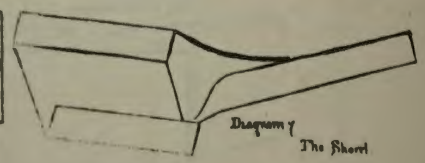


Diagram 7
The Shovel

A Spill.—Diagram 5. Paper should be again flattened out, as at the commencement of the previous object formed. Then place the papers so that the smooth side is touching the desk, and fold the top edge on to the bottom edge, and press the crease firmly. Give word "spill," and question with reference to its use.

A Shovel.—Halve the paper both ways, so as to form one perpendicular and one horizontal line passing through the centre of the oblong. Open

the paper and fold the right-hand short side to the centre. Turn the paper over so that the fold is underneath. Then fold the top edge to the bottom edges, open the paper and fold the two edges to the centre line (Diagram 6). Care should be taken at this point to ascertain that these folds have been made correctly before the next part of the work is attempted. When this has been done turn the papers over, and raise the part that is turned down, pressing the corners firmly down (Diagram 7). Then bend the handle back, so that the folds are inside, and halve it. A shovel has been made. Show a real shovel so that the children may see the points of resemblance. Sketch the shovel on B.B., and have a short talk about its form, uses, etc.

A conversational lesson might be given on a cupboard and its contents, the shovel and its uses, etc., and other handwork done in connection with the talk.

Simple Objects from the Oblong.

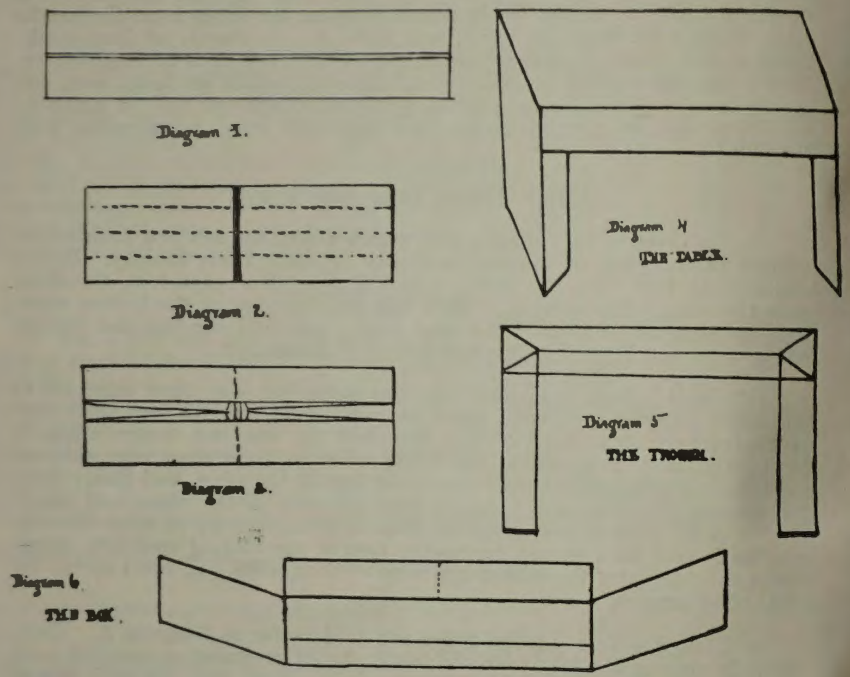
As the children have already used oblong papers the first few folds of the present exercise will be familiar, and may be made fairly rapidly. Before making the first fold, the children should place their papers on the desk, with the white sides showing. Then fold the top edge on the bottom edge, thus halving the papers. Then open them, and fold the top and bottom edges to the line formed by the first fold as in Diagram 1.

A Table.—Place the paper flat and then fold one short edge on to the other, Diagram 1. Again open the papers and fold the two short sides to the centre, as in Diagram 2. Now fold the top and bottom edges to the centre, as in Diagram 3, care being taken to make them meet exactly; next draw out the short sides to form the legs of the table, and firmly press the corners (Diagram 4). Compare with the table in the room, and sketch one on B.B. Ask a few questions about a table, its use, of what formed, etc., and then, as a reward for special care in the folding exercises, distribute a few things that the children can stand on their tables, *e.g.*, small sweets, toy cups and saucers, etc.

A Trough.—Take another paper and fold as far as Diagram 2. Then, before beginning the next fold, the papers should be placed on the desk with the open side downwards, touching the desk. Next fold top and bottom edges on to the centre line. Draw out the short sides only, to form the legs of the trough. Then the two short sides of the top of the trough must be folded inwards and firmly pressed to form the trough itself. Diagram 5. Have a short talk with the class about the object made. Show a toy stable with trough, and distribute small quantities of oats, etc., to put in the troughs the children have made, to represent the horse's food. What other food does the horse have given him? etc. Then, if time permits, let the children play a game arranging something to represent the trough, from which the horse takes his food in the game. If the time does not allow of a game being played

as part of the lesson, it should follow the lesson if possible, or if not it should be taken during the time allotted for Kindergarten games.

A Box.—Fold as before, as rapidly and carefully as possible, as far as Diagram 3, at the beginning of the lesson. The folded papers should be



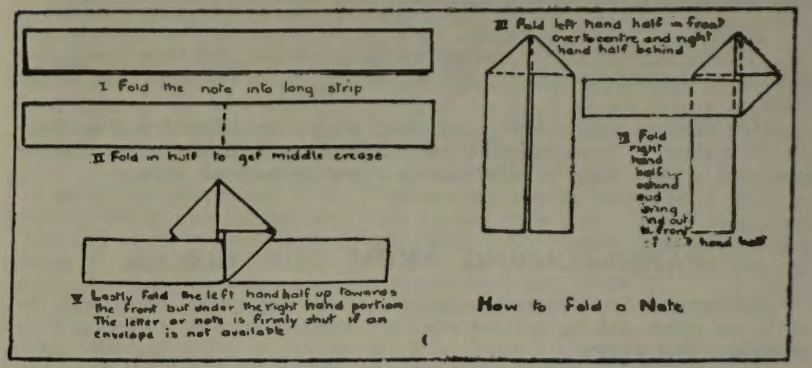
placed on the desk with the open part upwards. Then insert the first finger and raise the short sides, folding them back as in Diagram 6, and thus forming the box. Show a box similar in shape to the one made. Then carefully examine work and reward, where special care has been shown, by distributing sweets, etc., to be put in the boxes.

Conversational lessons should be given on a trough or a horse, a table, etc., and thus the interest of the children in the work done during the paper-folding period will be maintained.

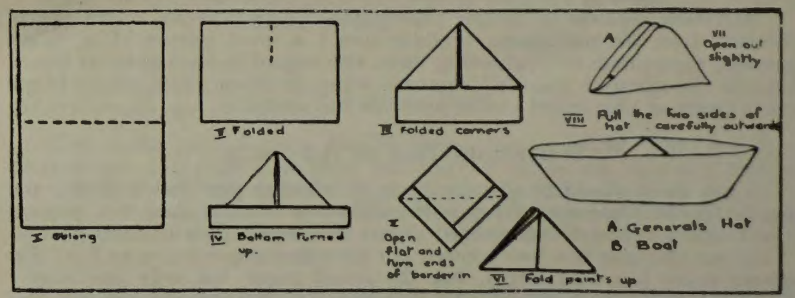
Some Exercises on the Oblong.

A Folded Note.—When an envelope is not handy it is useful to know how to fold a note in order that its contents may not be read by everyone.

Fold the sheet of notepaper into four or six, according to size and shape, thus making a long, narrow oblong, Fig. I. Make a fold in the centre as a guide, Fig. II. Fold the two sides to the centre, the left-hand side is folded


I Fold the note into long strip
II Fold in half to get middle crease
III Fold left hand half in front over to centre and right hand half behind
IV Fold right hand half behind and bring out in front
V Lastly fold the left hand half up towards the front but under the right hand portion. The letter or note is firmly shut if an envelope is not available
How to Fold a Note

forward and downward in front, the right-hand side is folded backward and downward behind Fig. III. Then fold the right-hand half up behind, but bring the long end out in front of the left-hand half, Fig. IV. Lastly,


I Oblong
I Folded
II Folded corners
III Open flat and turn ends of border in
IV Bottom turned up.
V Fold points up
VI Open out slightly
VII Pull the two sides of hat carefully outwards
A. General's Hat
B. Boat

fold the left-hand half up towards the front, but under the right-hand portion, Fig. V. Children love an air of mystery, and this folded note enables them to send very "important" communications to each other.

A General's Hat.—Fold the oblong in half, Fig. I, find centre point in crease, Fig. II. Fold the corners down evenly at this centre point, Fig. III. Fold up the bottom of the oblong, the bottom of the one half to the front, the other to the back, Fig. IV. This makes a cap like those found in Christmas crackers. Open out the cap and fold it flat, corner to corner, thus making a square, Fig. V, turn one end of border neatly in under the other end. Now turn up the two open corners, one each way, Fig. VI. Pull open slightly and there is a general's hat.

A Boat.—Proceed as before, right up to where the last exercise left off. Next, take hold of the two upstanding peaks and pull them firmly, but gently, in opposite directions. A boat like the one in the sketch will be the result.

The children will be highly delighted if they are allowed to float these on the water. A boat race with boats of different coloured papers can be instituted. These may be blown across a bowl or bath of water.

PAPER-FOLDING FROM THE CIRCLE.

Geometrical folds are not included in these suggestions taken with the circle, as object-making is more readily connected with short stories, little recitations and games.

The circular papers have been found very valuable when taken in connection with lessons on paper-folding from the square. Children note with interest the difference in shape of the papers, and are delighted with the entirely fresh forms which result from the circular paper.

Materials required.—Circular papers (the " City " series, which can be obtained from the publishers), brightly tinted in good colours. Use, where possible, appropriate tints, choosing them with regard to the particular lesson, *i.e.*, for the moon or arum lily choose a white or cream paper, whilst bright colours such as blue or red can be used for the sunshade, fan, or wall-pocket.

Preliminary Talk on the Circle.

Each child should be given a circle of white or pale yellow paper, and also a four-inch square. What is the difference between these two papers? The children should be encouraged to put into words their discoveries, as—" The square paper has four corners, but the round paper has none "; " The square paper has four edges, but the round paper has only *one* edge." Points of resemblance should also be noted, *i.e.*, both papers are thin and flat, have two sides, are easily folded and creased, etc.

A ball should be shown to the children, and they will see that the circular paper is like a flat *picture* of a ball.

Ask the children to name other spherical objects of which the paper might be a picture: they will suggest orange, marble, apple, the sun, the moon. The teacher may make this the opportunity of giving some idea of the moon's phases by means of a little story, illustrating differences in the crescent moon with two circles of paper, one white, representing the moon, and the other of a dark colour, representing the earth's shadow.

There was once a little girl named Mary, who woke up in the very middle of the night; but though it was so late her room was quite light. Why was that? Yes, the moon was shining in. It was quite large and round, and seemed to smile at the little girl (sketch full moon on blackboard), who soon went to sleep again. Now, a few nights afterwards, Mary woke again, and how surprised she was when she looked at the moon, to see that it was only half the size! (Fold white paper in halves.) Two nights after this a large piece seemed to be missing out of its side. She cried out, " Oh, Mr. Moon, you are smaller than ever to-night! " and a little voice from a long way off seemed to answer her: " No, I am not any smaller really, but I am turning my bright side further and further away from you. I shall soon show you only a very small slip of light (show very narrow crescent; place a circle of dark paper over the light circle to make a crescent, see Fig. 3), and after that you will not see me at all for a little while."

The children will know the nursery rhyme about the man in the moon who came tumbling down, or by means of a rhyme by Christina Rossetti they can learn the difference between the new moon and the waning crescent:—

" O Lady Moon, your horns point toward the East;
Shine, be increased. . . .
O Lady Moon, your horns point toward the West,
Wane, be at rest."

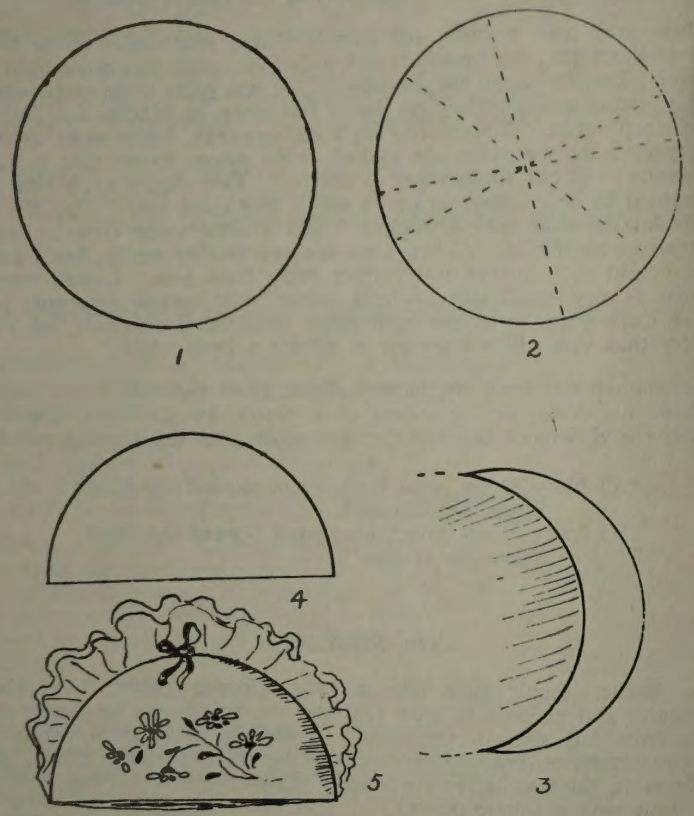
The First Fold.

The teacher should now take a large circular paper with which to demonstrate, and proceed to show that the two halves can be evenly creased together from any part of the edge. Crease the circle from various parts of the circumference (opening out and turning the paper each time); always, it will be seen, the two halves are exactly folded together. (Fig. 2.) Could this be done with a square paper?

The children may now carefully lift the lowest part of their paper and fold it to the top. This makes the " tea-cosy " (Fig. 4). Sketch one on the blackboard (Fig. 5), and allow the children with pencils to decorate the " cosies " they have folded, or to draw them on paper. This cosy may be made ready for when Polly has " put the kettle on and made the tea."

Second Fold.

A Tent.—Fold as for tea-cosy; open out, turn the paper so that the crease appears vertical, and again fold the lower edge to the top, carefully placing the two ends of the crease together. Without unfolding, turn the



paper so that the folded edge is vertical, and fold lower corner to upper; that is the bell-tent.

Sketch a bell-tent on blackboard, showing ropes, tent-pegs, and central pole, and tell a little story:—

Once there were some soldiers who had to march a long way in a very hot country. When night came on they were in a very wild place, where savage animals (who can guess what animals they were?) sometimes appeared. In order to make a shelter for the night they had to put up the tents which they brought with them. The strong pole in the centre had to be held up firmly, whilst the tent-pegs were driven in and the ropes fastened to them. See the opening for the door! Ten men lay down in each tent to sleep; all their feet were together near the pole, and their heads near the canvas. They were fast asleep, when suddenly there was a loud noise, and a tent nearly fell down; the pole slanted and some of the men held it steady, whilst others ran outside thinking they were attacked. And what do you think was the matter? An elephant had come out from the forest near by, and in the darkness had caught his feet in the tent ropes. An elephant is very, very strong, and in his alarm and attempts to escape he had nearly pulled the tent down. He went off into the forest and the soldiers did not see him again.

Third Fold.

There is a nursery rhyme which says:—

"Little lad, little lad, where wert thou born?
Far off in Lancashire, under a thorn,
Where they tap sour milk in a ram's horn."

A Drinking Horn.—The children should now turn the tent, with one straight edge in a horizontal position, and fold the lower point to the upper, taking care not to raise the paper from the table. The new fold must be well creased, as there are now several thicknesses of paper; the sharp point should be carefully made. Turn the curved edge to the top; this is the drinking-horn (Fig. 9). From what do *we* drink? The children will name cups, mugs, glasses. Ask from what could we drink if we did not know how to make these, and tell how in olden times the horns of animals—chiefly cattle—were polished, ground and ornamented, and used as cups (Fig. 10).

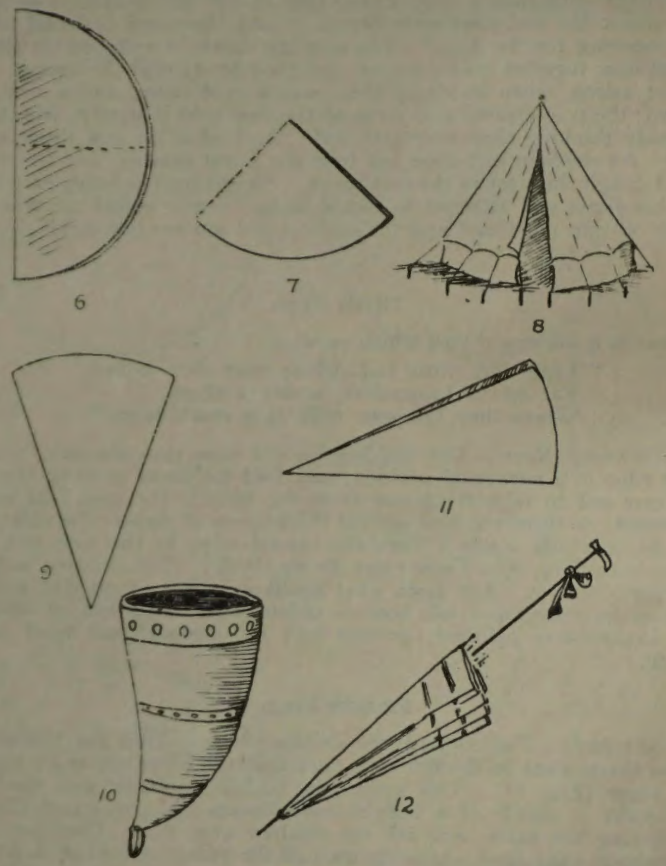
Fourth Fold.

A Sunshade.—Folded from the drinking-horn. Turn the folded paper with the sharp point to the left side, and fold the lower corner of the curve to the upper (Fig. 11). This makes the folded sunshade, and the teacher should make a sketch of a lady's sunshade on the blackboard (Fig. 12) before giving the name, and ask the children what it is. Question: What is a sunshade used for? At what time of the year? Of what is it made? How is it opened?

This lesson might be connected with one on the sunshade or umbrella, the children being shown the construction, and they may also draw in chalk on brown paper a sketch such as Fig. 12.

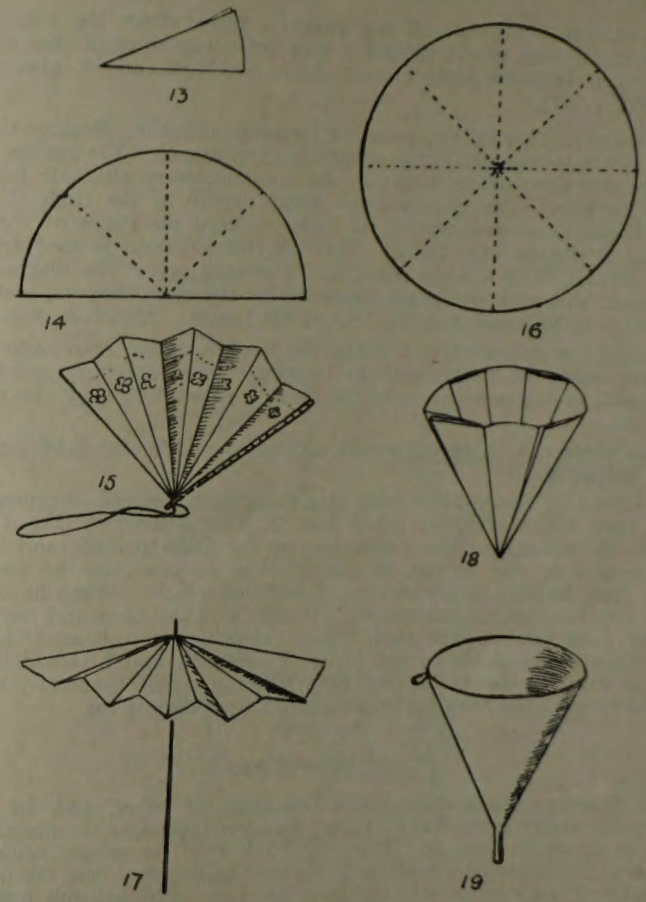
Objects Made From the Fourfold Plan.

Let each child have a circle of brightly coloured paper, and make the four folds previously described (see Figs. 6-12), and resulting in Fig. 13.



A Fan.—Now the paper is to be unfolded in order that the effects of the successive creases are seen. Half unfolded (so that the paper is a double semicircle),

it appears like a fan (Fig. 14); a resemblance which is improved if the folds are gently re-creased so that the "in" and "out" creases alternate. Sketch a fan on blackboard (Fig. 15).



A Wheel.—Open the paper entirely, flat on the table (Fig. 16), and ask for the name of any object which this resembles. Children sometimes

suggest "An orange cut through the middle" (the creases appearing like the divisions seen in the fruit), or "A bicycle wheel" (the creases representing spokes): sketch the objects named on the blackboard.

A Japanese Umbrella.—If the paper is raised from the desk, and a match or small stick gently pushed a very little way through the centre, we have an open Japanese umbrella—an object which is, indeed, always made of paper (Fig. 17).

A Funnel.—This follows from the Japanese umbrella. Remove the stick; the hole which is now seen is the outlet from the funnel. The creases already made are now arranged as shown in the diagram, every alternate fold being doubled back in order to lessen the circumference of the circle (Fig. 18). These should be pasted securely in order to keep the shape of the object. Ask what is the use of a funnel. Explain that a *funnel* is used frequently to pour liquids from a large vessel into a smaller one. The teacher should demonstrate this with her larger paper before the class, pouring water from a jar into a small bottle with the help of the funnel. Sketch as Fig. 19.

During the course of this lesson the teacher should encourage children who have made the folds carefully by preserving one or two specimens of each object, giving new papers to the owners, with which they can make the next form.

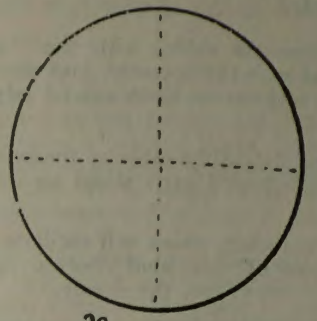
Now these can all be connected with some simple and brief story, such as the following:—

A little boy named Dick lived at a farm, and one day in summer, when it was very hot, his mother asked him to go into town to take a message for her. It was seven miles away, too far for Dick to walk, and there was no train or bus, and he had no pony. How do you think he went to the town? Yes, he rode on his bicycle: it had two *wheels*. When he came back he was very hot, and his sister said, "If you like I will come and fan you with my new pink *fan*." Dick said, "No, thank you, but I would like to sit for a while in the shade of the *Japanese umbrella*, and I *should* like something to drink." So his mother gave him a glass of lemonade, which she had put through the *funnel* when pouring it from the big jar.

Segment Folds.

A Bracket.—Each child has a new circle of paper, and the teacher a larger and stiffer one. Folds 1 and 2, when the paper is opened out, are made as shown in Fig. 20. Place the circle with the creases running vertically and horizontally across it. Into how many parts has the paper been divided? It may be pointed out here that paper-folding lends itself readily to elementary lessons on fractions: thus, now the children see that the paper is divided into fourths, that 2/4ths equals a half, that the subtraction of $\frac{1}{4}$ would leave $\frac{3}{4}$, etc.

Third Fold.—Lift the lower edge of the circle and fold it to the middle: accuracy is only obtained if the bottom of the vertical crease exactly touches



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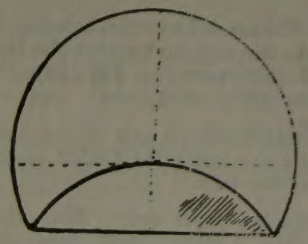

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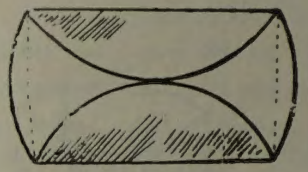

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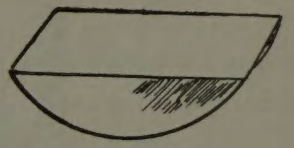

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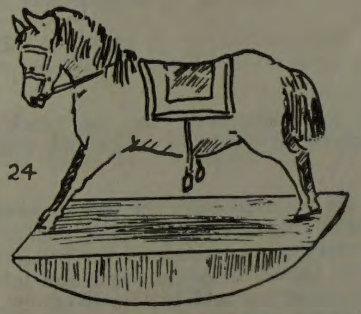

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the centre of the paper. The children may now hold up the paper by the large upper part, allowing the piece just folded to stand away from it at

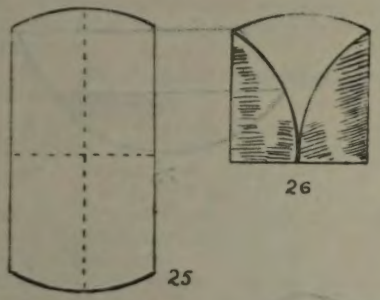
right angles. This is the bracket: try to obtain the name of the object from the children. Question: What are brackets used for? Where are they usually placed? Of what are they made?

A Rocker.—Lay the bracket down on the table, with the "shelf" turned to the top, and repeat the last fold with the opposite, and now lower edge of the paper (see Fig. 22). Next fold in the short curved edges, as shown by the dotted lines.

With the middle part of the paper held flat on the table by the left hand, now raise the last piece folded so that both folded parts stand up vertically —this is the tray.

Turn the paper over. This makes the rocker, which will oscillate gently (Fig. 23). Children will have seen toys of this kind—horses mounted on rockers, dolls' cradles, etc. They will know, too, the rhyme:—

"Ride a cock-horse to Banbury Cross
To see a fine lady ride a white horse."



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Draw a sketch of a rocking-horse on the blackboard (Fig. 24). Ask children of what material it would be made and what harness is used when a horse is ridden.

A Letter-rack.—Let the children place the rocker on the desk and carefully press down the upstanding sides until quite flat. The paper is now to be turned completely over (only the back of the paper will now be seen), and the long, straight lines should be at the right and left, while the short, curved edges are opened out at top and bottom (Fig. 25). Take the lower curved edge and raise it to the upper curved edge, creasing the paper across the centre, following the first fold made (Fig. 26).

The children may lift the paper from the desk, holding the two curved edges firmly together. These may be pasted if specimens are to be preserved, and a little story may be told to connect the objects:—

There was once a little boy who was very fond of animals. He had none of his own, for he lived in a great city, without any garden; but he had many toys. The one he liked most was a man riding on horseback. Bobby often wished he had a horse and could ride, too. One Christmas he thought he would write a letter to Santa Claus and ask for one. So he wrote a long letter, telling exactly the kind he would like—a grey horse with a long mane and tail. He had no stamp to put on his letter, so he placed the envelope in his mother's *letter-rack*, and hoped that she would send it.

When Christmas came Bob *did* get a horse—a grey one with a long mane and tail—but it was not a live one! Can you guess what it was? A horse that stood on a *rocker*. Bob spent so much time with his new playmate that he did not need the toy horseman, whom he put away on the *bracket* so that he should be safe.

Objects Made by Combining Folds.

Wall Pocket and Corner Bracket.

First Fold.—Lower curved edge to the top, folding paper exactly in halves.

Second Fold.—Open out the paper, turning it so that the crease runs right and left, and again fold lower edge to the top.

Third Fold.—Open out; fold lower edge to middle of paper (Fig. 28).

Fourth Fold.—Open out, turn paper so that the last crease is on the left side, vertical (Fig 29); fold lower edge to the centre.

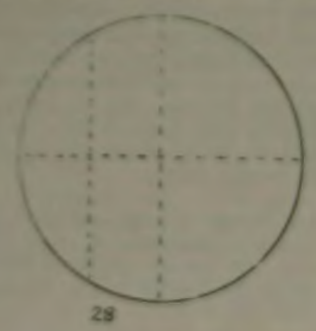
Fifth Fold.—Open out; turn the paper completely over, with the last two creases crossing at the top (Fig. 30), and fold the lower part of the paper upwards from A and B.

Open out, turn the paper over and fold along the lines A—A^1, and B—B^1 (intersecting at C); this makes the wall-pocket (Fig. 31).

The corner bracket is made from this by raising the folded pieces A—C and B—C, fastening the upright corner with paste, while the part creased by the fifth fold (Fig. 30) is allowed to fall at right angles to the paper

Ask the children where we should place a bracket of this shape. Why not against a flat wall? What *is* a corner? Are all corners of the same size? If the children have any elementary knowledge of angles they will notice that this bracket,

being right-angled, will only fit a right-angled corner. The schoolroom walls will furnish examples of this, and the teacher may construct other corners with cardboard, showing acute and obtuse angles, which the bracket would not fit.



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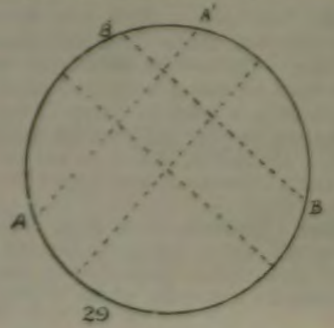

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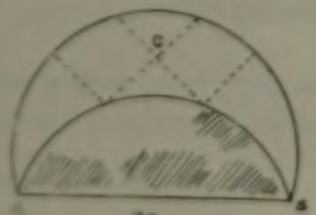

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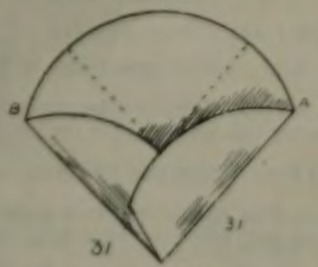

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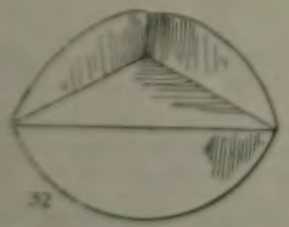

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The teacher should encourage the children to regard their work as being

of some value by making some small if only temporary use of it. A few of the little brackets, when pasted firmly, may be tacked with a couple of drawing pins into a corner of the classroom wall, and some small object, as a fruit or nut or little wooden toy or clay model, placed upon it.

A Shovel.

First.—Fold lower edge to top, creasing across the paper.

Second.—Open out; turn paper half round, make fold similar to the first but with the crease crossing the first at right angles.

Third.—Lower edge folded to centre.

Fourth.—Open out; turn last crease to left, and again fold bottom edge to centre.

Fifth.—Now turn the last crease to the left and once more fold the lower edge to centre. Open out, and creases appear as Fig. 34.

The two corners made by intersecting lines at A and B are now to be lifted, folded back and pasted firmly.

Ask children for name of the object, question on the material used in making shovels, and the use to which they are put. A small stick, such as is used for stick-laying, may be inserted at the back of the shovel to form a handle.

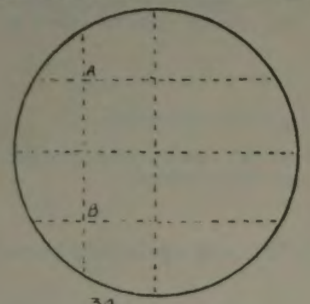
A Box.—Objects have been made by folding in *one* side of the circle (bracket), two *opposite* sides (rocker), two *adjoining* sides (corner bracket), and three adjoining sides (shovel). Here are some things made by folding four sides—a box and tablecloth. (Sketch on blackboard.)

Fresh papers being given to the class, folds are made exactly as for the shovel; the three sides having been creased and the paper opened out, the remaining side is turned nearest to the child, and then folded to the centre.

The corners A, B, C and D are now lifted and folded back. Turned completely over, this is the round tablecloth. With the corners fairly pasted, and in its original position, the box is made. Connect these three objects with a short story:—

Daisy was just six years old: her birthday came in the winter, when the winds blow cold and we have fires all day long. She was a good little girl, and father and mother gave her, on the morning of her birthday, a little brooch made just like a daisy flower. Her brother Harry gave her a little *box* which he had made. Daisy was so pleased with this, and began putting all her treasures in it—her sewing and thimble and little scissors, her best ribbons and new little brooch. Suddenly Toby the dog ran in, jumped up and put his paws on the table, and over went Daisy's

box. Everything was spilled on to the *tablecloth*. The little girl picked up her things, but could nowhere find the brooch. At last Harry took the cloth and shook it, and something dropped in the fender; it was the brooch,



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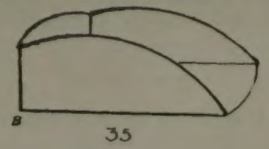

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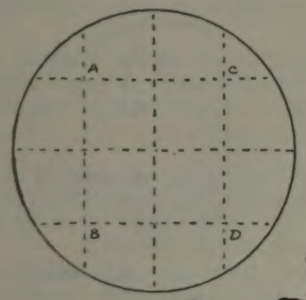

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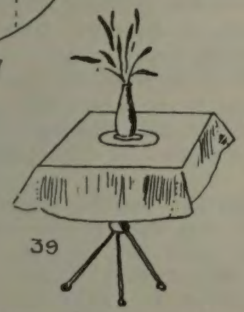
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which had caught in the hem. Harry could not take the brooch out with his hands, for it had fallen amongst the hot ashes, but he took the *shovel* and got it out safely. Daisy was so glad to have it again.

Objects Made by Combining Folds.—(*Cont.*)

A Cigar-Case and Pillar Box.—Each child should have a *red* circle of paper to use during this lesson.

The first folds are made as for the rocker, but the folded pieces are kept flat, as shown in Fig. 40, and this may be called the cigar-case. Without opening the paper take the lower edge A—B, and fold it to the centre. Now turn the paper right over and the pillar-box is seen. The teacher should sketch on blackboard, as Fig. 42, and ask what colour she should use if it had to be painted. Lead the children to suggest that she should draw the opening through which letters, etc., are posted; the letters "E.R." may be put in and explained. A little chat about our letter and parcel post should follow, or a conversation lesson which deals with the Post Office may be usefully connected with this.

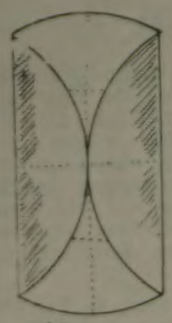
A Curtained Book-Shelf.—The pillar-box is turned over, as Fig. 41, and the remaining curved side is folded to the centre. Next, A and B are folded backwards (see Figs. 43 and 44). The lower of the two edges folded *inside*, marked C in the illustration, has now to be gently pulled forward to form the shelf, the curved sides representing curtains; small corners are folded underneath the shelf, and may be pasted to keep the object in shape. The teacher should draw Figs. 43 and 44 upon the blackboard, and before asking the children to make a new fold should demonstrate it with her own large paper. Sketch a book-shelf, with volumes resting on it; this helps the children to realise the object they have made and adds interest. A little story may be used:—

Peggy's father had a very nice *book-shelf* in his room; it was made of wood, and had green curtains to keep the dust from his books. He often used to put other things on the shelf besides books, and one evening when he was sitting in the garden with mother, he called out to Peggy: "Run, Peggy dear! Go to my book-shelf, and in the very front you will find a letter that I wrote this afternoon, and my *cigar-case*. Now I want you to run quickly to the *pillar-box* just outside the gate, and post the letter for me; the postman will come in a minute to take them. And then you can bring the cigar-case to me, please!"

The little girl loved to do anything for father or mother, so she ran upstairs, took the letter in her left hand and the cigar-case in her right, came down again in a great hurry, rushed to the pillar-box outside the gate, and then, what do you think she did? She posted the cigar-case and ran with the letter to her father! Now can you tell me how they put it all right? (Let children suggest endings to the story.)

Segment Folds Between Diameters.

A Glass Bowl.—Draw diameters crossing at right angles as Fig. 20, and ask the class to make folds which will produce these lines.



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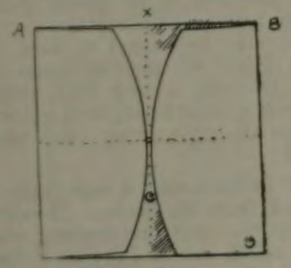

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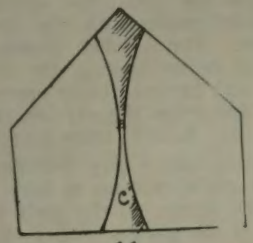

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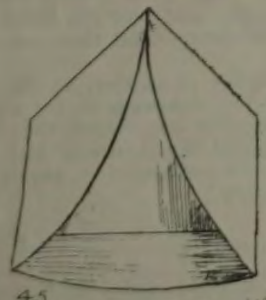

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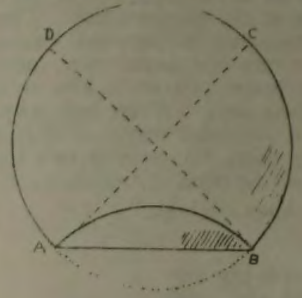
When this has been done, and the papers opened out, letter the points A, B, C and D on the blackboard, and show the children how to fold the curved piece between A and B as seen in Fig. 47. Turn this to the top



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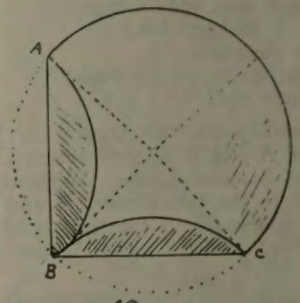

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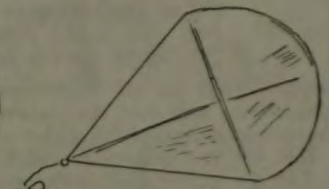

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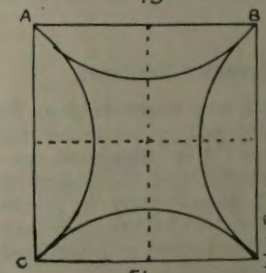

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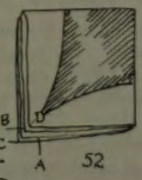

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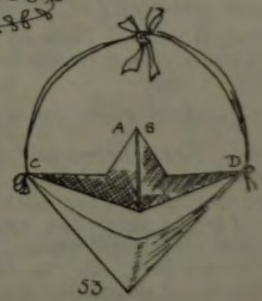

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and the glass bowl is seen. Sketch a bowl with a goldfish (use yellow or orange chalk) on the blackboard and let the children describe any such

bowls that they may have seen, saying what food the little fish eat and the kind of water they can live in.

A Kite.—The Curve B—C has now to be carefully folded in, care being taken that the two curves exactly meet at the diameter-line. The last two folds are more difficult than those attempted in previous lessons, as the parts folded are much smaller. Now turn the paper over, and ask the children to suggest an object similar in shape. Sketch a kite on the blackboard, and have a little talk about these toys. When and why do they rise in the air? Do we use the wind in any other way? The children will probably name the windmill and sailing ships. A verse or two from "The Wind," by Robert Louis Stevenson, may be read, it begins:—

"I saw you toss the kites on high."

Or this verse is suitable:—

"If I could rise up with my kite
Into the air, so high and bright,
I'd see the most delightful things
Just like the birds and bees with wings.
I'd go up, up, till I looked down
On all the people in the town,
And you would look, from up so high,
No bigger than a little fly!"

A Basket.—Fold in all four curved sides, as shown in Fig. 54. Turn the paper over and fold the corners A and B to the corners C and D, forming the crease indicated by a dotted horizontal line. Without opening the paper, fold the two corners A and C to the two corners B and D (Fig 52). Now lift the object and, with open corners to the top, hold the two middle points (A and B) firmly together, whilst C and D are carefully pulled out sideways.

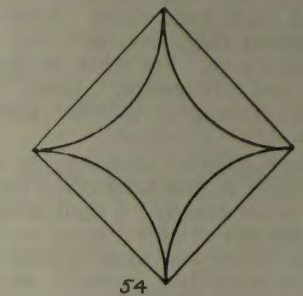
A and B may be fastened together with paste, and the basket finished with a narrow ribbon handle.

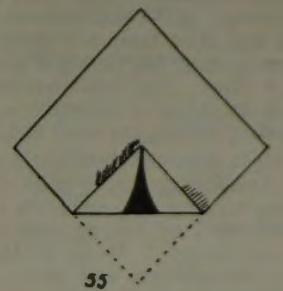
More Difficult Examples of Segment Folding.

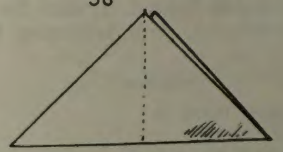
A Mat, Photo Frame and Blotter.—From a new paper fold as Fig. 51. This may be called the large mat. A smaller mat is made by reversing the large mat and folding back all four corners. Fig. 55 shows one corner folded. Fig. 56 shows two opposite corners folded and the object reversed to form the photograph frame. When Fig. 57 (small mat) is produced, it may be turned over, and the blotting-pad is seen. Children will have seen these, consisting of several thicknesses of blotting-paper backed with cardboard, and the sheets protected and held at the corners with leather.

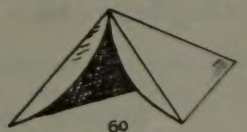
A Miner's Hut.—Let the class make folds as Fig. 54, keeping the curved edges well pressed down. Now lift the lowest corner and bend it

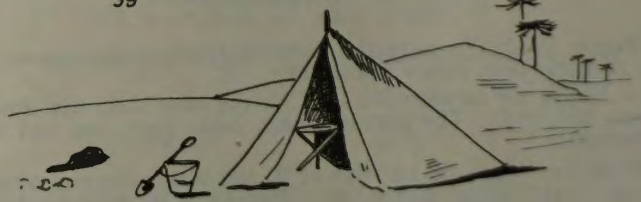
along the diameter crease already made, towards the top corner. Do not press it flat. Lift the object from the desk and allow it to stand in the











position shown in Fig. 60. Bring carefully into place the two curved sides which screen the entrance to the miner's hut. A simple sketch on the blackboard, as suggested, will interest the children.

Introduce a little story dealing with mining life, such as the following:—

Once there were two men who were miners; they were great friends and always lived together. They went into a very wild country, where there were no houses; only wild animals and birds lived there. They carried their food and their tools with them wherever they went, and they walked many miles looking for the right place to dig in. For what do you think they used to dig? (Let children suggest, and take answer, "Gold.") Once they wandered about for nearly a year, looking in different places and digging, finding nothing but sand and rock.

One night they were both sitting outside their *hut* smoking; the hut was made of canvas, with strong poles to support it, and they could close it in front at night. One man suddenly said to his friend, "I shall write to my mother, and say I am coming home to take care of her; it is no use looking for gold any longer." So he fetched his *blotter* and wrote a letter. Then he took up his pick-axe and said, "This is my last stroke!" and struck into the ground. How surprised he was when he saw something shining brightly in the hole he had made! Can you guess what it was? They had found gold! So after all when the miner went home he was able to help his mother, and buy her a nice little house to live in.

More Difficult Examples of Segment Folding.—(*Cont.*)

A Hat.—A diagram of the mat (Fig. 61) will be sufficient for the class to work from. The mat is now to be turned over, and folded in halves as seen in Fig. 62. This is again halved by doubling A behind B, and the *hat* is produced (Fig. 63). Sketch a hat on blackboard, with trimming to give it reality.

The following verse is a favourite:—

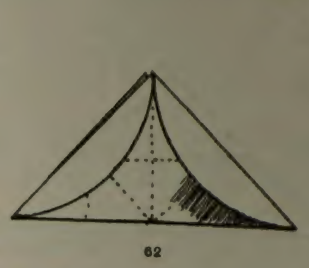
"Bring the comb and play upon it!
Marching, here we come!
Willie cocks his highland bonnet,
Johnnie beats the drum."—*R.L.S.*

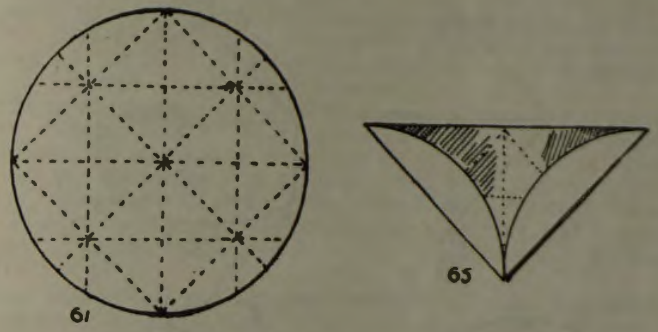
A Flower Vase.—To make this form, first prepare the paper, folding it to produce the lines shown in Fig. 61.

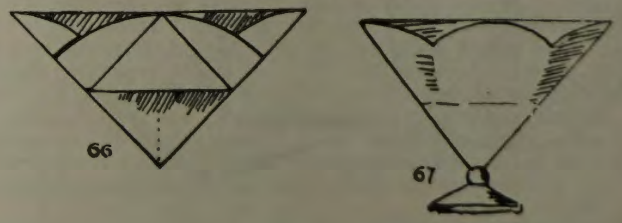
Now fold in the curved sides as if for the large mat, and double this in halves. (Fig. 65.) The next movement needs great care and must be made accurately.

Lift the point A to the top edge at B, and before creasing arrange the corners at C and D as in Fig. 66. These little folds follow the lines already made, but must not be creased hastily. Sketch a vase filled with flowers on the blackboard, and chat with the children about vases.

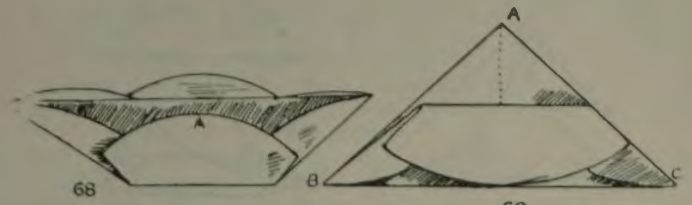
Question.—Of what can vases be made? Where do we put them? What do we put in them? Why do we keep flowers in the house? What







do we put in the vase besides flowers? What use is the water to the flowers? How do flowers drink?



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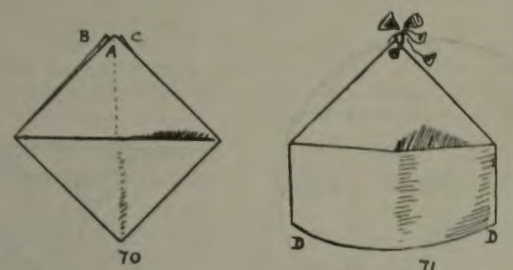

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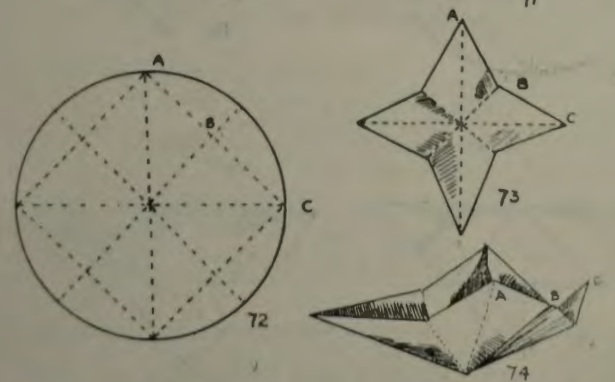

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The children may be allowed to draw the two simple objects they have made—hat and vase—with chalk on brown paper

A Double Boat.—Fold as for the flower-vase, see Figs. 61, 65 and 66. Raise A to the folded edge, pressing out the little corners as for the vase, and when this is completed turn the paper over and repeat these folds with the second point. To make the object firm the little corners should be pasted securely.

Sketch a small boat on the blackboard, allowing the children to suggest the water. Ask how an empty boat would be secured, and draw a rope tied to a post or ring. The children may be allowed to repeat appropriate verses such as "Boats sail on the River," or "Ferry me across the Water," by Christina Rossetti. The old song, "I saw a ship a-sailing," is always a favourite with children.

A Toilet Tidy.—See Figs. 61 and 66 of the flower-vase: this form (the tidy) is obtained directly from the vase. The latter being completed invert it, turn the two lower points B and C backwards up to the top point A. Hold or fasten these three points firmly together, and pull the front part of the "tidy" forward a little, to form a receptacle. The corners D—D may be brought downward.

Children who have succeeded in making one of these objects neatly may be given a larger circle of white cartridge paper; one with a diameter of eight inches is a convenient size. The "tidy," when folded from this circle, can be ornamented with brushwork, tied up at the top with narrow ribbon or coloured string, and may be taken home as a present for mother.

A lesson on neatness is suggested by the toilet tidy, and a little story may serve to impress this and to connect the two objects folded during this lesson:—

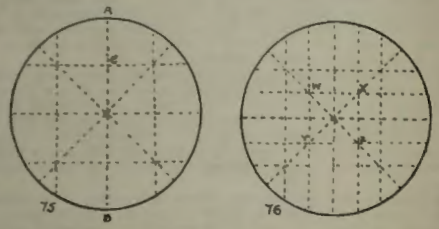
Betty was a little girl who was always in a hurry. One evening her big brother said to her, "Betty, if you will get up early to-morrow, I will take you out with me in my boat. I am going for a row before breakfast." So next morning the little girl jumped out of bed as soon as she heard her brother moving in the next room, hurried into her clothes and rushed downstairs. Her mother called to her and said, smiling, "My little girl has forgotten something, I'm afraid! Run back and look at your room, Betty, and see if you would like to go out and leave it so untidy." Betty ran upstairs and saw her bed unmade, her hair-brush on the floor, dust on the table, scraps of paper beside her bed, and when she looked at her toilet tidy, do you know, it was quite empty. Before Betty had finished her room, Dick was far away on the water, but he was a kind brother, and next morning, he called Betty again and she really was ready. You could not find anything out of its place—and Betty's scraps of paper and all the bits that spoil a little girl's room were safely tucked away in the tidy on the wall.

A Star may be produced from any of the four preceding objects. If any of the latter are partly unfolded, with the four curved edges remaining as in Fig. 54, the star may readily be seen. Pull the long corners *out*

and press the short lines *in*. If folded from a new paper, the lines shown in Fig. 72 only are necessary. There is an easy poem by Christina Rossetti which begins, "What do the stars do," which this star can illustrate, or a verse from "Twinkle, Twinkle, little star" may be said.

To make the *Jam Dish* reverse the star (so that the pressed-down curved edges are seen), and retaining the shape of three points, fold the fourth back to make the handle (Fig. 74). Be careful to keep the three long points pulled out well, with the shorter lines bent inwards.

A Coal-Box.—Figs. 75 and 76 show the lines which are made for the next four objects. Draw Fig. 75 on the blackboard and allow the class to work from it. When this is done, the lower edge (B) is raised

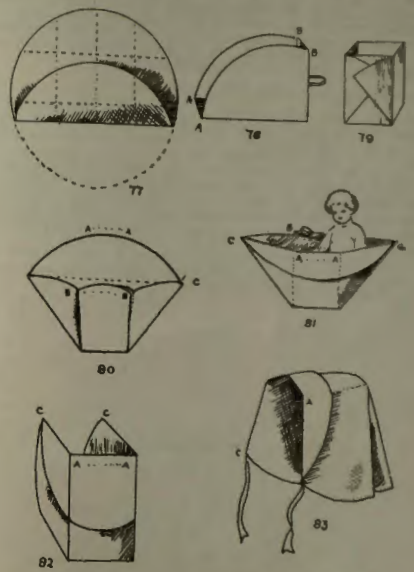


to the point (C) and carefully folded. Open out, turn the new fold to the left, and again raise the lower edge and fold as before. Repeat this until all four sides have been creased, when lines will appear as in Fig. 76. Notice the little square (W X Y Z) nearest to the centre. These corners are used in the succeeding objects. Raise the corner at X and at W to make the coal-box. Fold the loose pieces across each other *behind* the object, and paste into position if they are to be preserved. A tiny piece of wire or bent cane may be fixed, as shown in Fig. 78, for the handle.

A Waste-Paper Basket.—Raise the four sides at W X Y Z, pressing the loose pieces at the corners into position at two opposite sides (Fig. 79), securing these if necessary.

A Bath is obtained from the folds made for the coal-box. When these are completed, turn the loose corner piece inwards, and with the back of

the coal box towards you, press B—B towards A—A, allowing the corners C—C to press outwards. Crease the new lines made by the formation of these corners with care.



Now turn down the large curve (A) along the line C—C. This completes the bath, the folds B—B representing the soap-tray. A small doll may be placed in the bath which has been folded with the greatest accuracy.

A Sun-Bonnet is folded in exactly the same way as the bath. (Figs. 75, 76, 78, 80 and 81.) Place the bath flat on the table, and, holding the loose pieces which are seen inside firmly down with the left forefinger, gently pull A—A toward you until this piece stands upright; now with the thumb and finger press the corners at A—A into position, when the lines A—C should be at right angles to the line A—A. When this is done the sun-bonnet is in shape and may be lifted into the position shown in Fig. 83.

Connect these four objects with a little story:—

Peggy was a tiny little girl, only four years old. She loved to play in the garden, but one day it rained, and her mother asked her to stay in the nursery and be a very good girl. Peggy promised, and directly her mother went out of the room she thought she would try to please everyone by tidying her room. So she put all the scraps she could find in the waste-paper basket, and then she looked round and saw that everything looked nice and tidy—except the *Coal-box*. So she began to put all the lumps of coal very straight, with the big ones underneath and the little ones on top—and when she had finished, can you guess what little Peggy looked like? She had black hands and face, and was all covered with dust—and just then her mother came in. Peggy had to have a bath at once, and when she was dressed again the sun was shining, so her mother put Peggy's sun-bonnet on to keep the little girl's face shaded, and sent her to play in the garden.

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